City of New London

Department of Finance-Purchasing Agent
13 Masonic Street • New London, CT 06320 • Phone (860) 447-5215 • Fax (860) 447-5297

Request for Proposals
Specifications and Proposal Documents Attached

Proposal No.: 2021-13

Opening Date and Time: July 1, 2021 @ 2:00 P.M.

Title: Repairs and Improvements at the Marina Parking Lot

Special Instructions:

1. **There will be a MANDATORY site visit on June 14, 2021 at 10:00 A.M. Respondents will meet at 9:30 A.M. at 111 Union St., New London, CT 06320 to sign-in and then drive to location.**
2. **All questions should be directed to Brian Sear by email at bsear@newlondonct.org and Thomas Quintin at tquintin@newlondonct.org no later than June 21, 2021 by 4:00 P.M. Please copy Joshua Montague at jmontague@newlondonct.org on all inquiries.**
3. **PROJECTED start date of construction is September 15, 2021.**

The following information must appear in the lower left hand corner of the envelope:

Sealed Proposal No.: 2021-13

Not to be opened until July 1, 2021 at 2:00PM

Return Bid to:

Joshua Montague; Accounting Purchasing Agent
City of New London
13 Masonic Street
New London, CT 06320

Proposals shall not be accepted after the Opening Date and Time indicated above.

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PLEASE RETURN THIS FORM IMMEDIATELY

Acknowledgement: Receipt of Request for Proposals

Bid No.: 2021-13

Repairs and Improvements at the Marina Parking Lot

Please take a moment to acknowledge receipt of the attached documents. Your compliance with this request will help us to maintain proper follow-up procedures and will ensure that you receive any addendum that may be issued.

Date Issued: June 2, 2021

Date documents received: _____/_____/_____

Do you plan to submit a response? Yes_____ No_____

Print or type the following information:

Company Name: _____

Address: _____

_____

Telephone: _____ Fax: _____

E-mail: _____

Received by: _____

Note: Faxed or e-mailed acknowledgments are requested.
Fax No.: (860)447-5297
E-mail: jmontague@newlondonct.org

Fax this sheet only. A cover sheet is not required.

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Standard Invitation for Bids (IFB) and Contract Terms and Conditions

All Invitations for Bids issued by the City of New London (City) will bind Bidders to the terms and conditions listed below, unless specified otherwise in any individual Invitation for Bids.

Incorporated by reference into this contract are the provisions of Section 2-66 through 2-71 and Section 2-73 of the Code of Ordinances of the City of New London.

The contractor agrees to comply with the Code of Ordinances as they exist on the date of the contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

Submission of Bids

1. Bids must be submitted on forms supplied by the City of New London. Telephone, facsimile or e-mail bids will not be accepted in response to an Invitation for Bids. An original and one (1) copy of the Proposal Form shall be returned to the Purchasing Agent.

2. The date and time bids are to be opened are given in each Invitation for Bids issued. Bids received after the specified date and time of the bid opening given in each Invitation for Bids will not be considered. Bid envelopes must clearly indicate the bid number as well as the date and time of the bid opening. The name and address of the bidder should appear in the upper left-hand corner of the envelope.

3. Incomplete proposal forms may result in the rejection of the bid Amendments to bids received by the Purchasing Agent after the date and time specified for the bid opening shall not be considered. Bids shall be computer prepared, typewritten or handwritten in ink. Bids submitted in pencil shall be rejected. A person duly authorized to sign bids for the bidder shall sign all bids. Unsigned bids shall be rejected. The person signing the Proposal Form or their authorized designee must initial errors, alterations or corrections on both the original and copy of the Proposal Form to be returned. In the event an authorized designee initials a correction, there must be written authorization from the person signing the Proposal Form to the person initialing the erasure, alterations or corrections. Failure to do so shall result in rejection of the bid for those items erased, altered or corrected and not initialed.

4. Conditional bids are subject to rejection in whole or in part. A conditional bid is defined as one that limits, modifies, expands or supplements any of the terms and conditions and/or specifications of the Invitation for Bids.

5. Alternate bids will not be considered. An alternate bid is defined as one that is submitted in addition to the bidder's primary response to the Invitation for Bids.

6. Prices should be extended in decimal, not fraction, to be net and shall include delivery and transportation charges fully prepaid by the Contractor to the destination specified in the Invitation for Bids and subject only to cash discount.

7. Pursuant to Sections 12-412 and 12-412(1) of the Connecticut General Statutes, the City of New London is exempt from the payment of excise, transportation and sales taxes imposed by the Federal Government and/or the State. Such taxes must not be included in the bid prices.

8. In the event of a discrepancy between the unit price and the extension, the unit price shall govern.

9. By its submission the Bidder represents that the bid is not made in connection with any other Bidder submitting a bid for the same commodity or commodities and is in all respects fair and without collusion or fraud.

Standard Invitation for Bids (IFB) and Contract Terms and Conditions

10. All bids will be opened and read publicly and upon award are subject to public inspection.

Guaranty or Surety

11. Bid bonds, performance bonds, and labor and material bonds will be required as specified below. Guaranty or surety may be in the form of certified check. Bonds must meet the following requirements: Corporation – must be signed by an official of the corporation above their official title and the corporate seal must be affixed over the signature; Firm or Partnership - must be signed by all of the partners and indicate they are "doing business as"; Individual – must be signed by the owner and indicated as "Owner". The surety company executing the bond or countersigning must be licensed in Connecticut and an official of the surety company must sign the bond with the corporate seal affixed over the signature. Signatures of two (2) witnesses for both the principal and the surety must appear on the bond. Power of attorney for the official signing the bond for the surety company must be submitted with the bond.

    Bid Bond – Ten percent (10%) due at time of bid for all contract services and public works/construction projects that exceed twenty thousand dollars ($20,000.00)

    Performance Bond – One hundred percent (100%) of contract price for projects that exceed fifty thousand dollars ($50,000.00).

    Labor and Material Payment Bonds – One hundred percent (100%) of contract price for projects that exceed fifty thousand dollars ($50,000.00).

Award

12. Award of this contract will be made to the lowest responsible, qualified bidder and will be based on net cost and City specifications. The City of New London reserves the right to award this contract to other than the low bidder and to make multiple awards if deemed in the best interest of the City.

13. The City of New London allows a fifteen percent (15%) local vendor preference. A New London based business will be considered the lowest responsible bidder if its bid is within fifteen percent (15%) of the low bid and it is willing to accept the award at the low bid price. Any bidder claiming to be a New London based business must provide documentation that all of its motor vehicles are registered in New London and that payment of all of its property and motor vehicle taxes are current.

14. The City of New London may reject any bidder in default of any prior contract or guilty of misrepresentation or any bidder with a member of its firm in default or guilty of misrepresentation.

15. The Purchasing Agent may correct inaccurate awards resulting from clerical or administrative errors.

Other Requirements

16. The City has an employment preference goal that jobs be offered to local residents on public prevailing wage projects with thresholds greater than $100,000 for renovation and $1,000,000 for new construction. For such projects, it is understood that contractors shall make a good faith effort to employ a participating workforce comprised of twenty-five (25%) local residents of New London County, CT, with residents of the City of New London, CT getting a priority representing fifty percent (50%) of said participation, which will include twenty-five percent (25%) female and minority.

17. The City has an employee training preference goal that apprenticeship opportunities be made available for state licensed trades on public prevailing wage projects with thresholds greater than $100,000 for renovation and $1,000,000 for new construction. For such projects, it is understood that contractors shall make a good faith effort to employ a minimum of ten percent (10%) of the workforce per state licensed trade as apprentices and, of this number, a minimum of fifty percent (50) shall be in the first year of apprenticeship training.

Standard Invitation for Bids (IFB) and Contract Terms and Conditions (con't)

Contract

18. The existence of a contract shall be determined in accordance with the requirements set forth above.

19. The Contractor shall not assign or otherwise dispose its contract or its right, title or interest, or its power to execute such contract to any other person, firm or corporation without the prior written consent of the City of New London.

20. Failure of a Contractor to deliver commodities or perform services as specified will constitute authority for the City of New London to purchase these commodities or services on the open market. The contractor agrees to promptly reimburse the City of New London for excess cost of these purchases. The purchases will be deducted from the contracted quantities.

21. The Contractor agrees to hold the City of New London harmless from liability of any kind for the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention furnished or used in the performance of the Contract; Guarantee its products against defective material or workmanship; repair damages of any kind, for which it is responsible to the premises or equipment, to its own work or to the work of other contractors; obtain and pay for all licenses, permits, fees etc., and to give all notices and comply with all requirements of the City of New London, the State of Connecticut and the U.S. Government.

22. Insurance requirements generally apply to contract services, professional services and public works improvement/construction projects. The Contractor will carry commercial general liability insurance to protect the City of New London from loss. The following minimum limits shall be met:

Bodily Injury and Property Damage – One million dollars ($1,000,000.00) each occurrence; two million dollars ($2,000,000.00) aggregate

Products or Completed Operations - One million dollars ($1,000,000.00) each occurrence; two million dollars ($2,000,000.00) aggregate

Commercial Automobile Coverage including owned, non-owned, leased and hired vehicles (if used on City of New London property) – One million dollars ($1,000,000.00) combined single limit for each accident.

Workers' Compensation Coverage - Will be in accordance with State of Connecticut requirements at the time of bid.

Any deductible or self-insured retention must be disclosed and any claim payments falling within the deductible shall be the responsibility of the contractor.

The Contractor shall require all subcontractors to carry the same forms and minimum coverages that it is required to provide. Evidence of these coverages must be provided to the City of New London Purchasing Agent prior to the contractor or subcontractor coming onto the work site.

All insurance policies shall be endorsed to the City of New London, its officers and employees as additional insured, and shall not be reduced or cancelled without thirty (30) days prior written notice to the Purchasing Agent. In addition, the contractor's insurance shall be primary as respects the City of New London, and any other insurance maintained by the City of New London shall be excess and not contributing insurance with the contractor's insurance.

Contractor shall agree to maintain in force at all times during the contract the following minimum coverages and shall name the City of New London as an Additional Insured on a primary and non-contributory basis to all policies, except Workers Compensation. All policies should also include a Waiver of Subrogation. The Additional Insured Endorsement shall be written on ISO Form 2010 and 2037 or its equivalent and shall include coverage for Products/Completed Operations after the work is complete.

Standard Invitation for Bids (IFB) and Contract Terms and Conditions (con't)

23. Notwithstanding any provision or language in this contract to the contrary, the Mayor may, without cause, terminate this contract upon approval by the City Council, whenever he/she determines that such termination is in the best interest of the City of New London. Any such termination shall be effected by delivery to the Contractor of a written notice of termination. The notice of termination shall be sent by registered mail to the Contractor address furnished to the City of New London for purposes of correspondence or by hand delivery. Upon receipt of such notice, the Contractor shall both Immediately discontinue all services affected (unless the notice directs otherwise) and deliver to the City of New London all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have been accumulated by the Contractor in performing its duties under this contract, whether completed or in progress. All such documents, information and materials shall become the property of the City of New London. In the event of such termination, the contractor shall be entitled to reasonable compensation as determined by the Mayor, however, no compensation for lost profits shall be allowed.

Delivery

24. All products and equipment delivered must be new unless otherwise stated in the proposal specifications.

25. All deliveries will be to the locations specified by the City of New London. The City of New London does not have a loading dock therefore all Contractors will be responsible for inside delivery without assistance from City of New London personnel.

26. Payment terms are net 45 days after receipt of goods or invoice, whichever is later, unless otherwise specified.

27. Charges against a Contractor shall be deducted from current obligations. Money paid to the City of New London shall be payable to the Treasurer, City of New London.

Saving Clause

28. The Contractor shall not be liable for losses or delays in the fulfillment of the terms of the contract due to wars, acts of public enemies, strikes, fires, floods, acts of God or any other acts not within the control of or reasonably prevented by the Contractor. The contractor will give written notice of the cause and probable duration of any such delay.

Advertising

29. Contractors may not reference sales to the City of New London for advertising and promotional purposes without prior approval of the City of New London.

Rights

30. The City of New London has sole and exclusive right and title to all printed material produced for the City of New London and the Contractor shall not copyright the printed matter produced under this contract.

31. The Contractor assigns to the City of New London all rights, title and interests in and to all causes of action it may have under Section 4 of the Clayton Act, 15 USC 15, or under Chapter 624 of the Connecticut General Statutes. This assignment occurs when the contractor is awarded the contract.

32. The Contractor agrees that it is in compliance with all applicable federal, state and local regulations, including but not limited to Connecticut General Statutes Section 7-148i. The Contractor also agrees that it will hold the City of New London harmless and indemnify the City of New London from any action which may arise out of any act by the Contractor concerning lack of compliance with these laws and regulations. All purchases will be in compliance with Sections 22a-194 to 22a-194g of the Connecticut General Statutes related to product packaging.

33. This contract is subject to the provisions of Executive Order Number Three of Governor Thomas J. Meskill promulgated June 16, 1971, the provision of Executive Order Number Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973 and Section 16 of Public Act 91-58, nondiscrimination regarding sexual orientation, and the provisions of Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999 regarding Violence in the Workplace Prevention Policy.

Minimum Rates and Classifications for
Heavy/Highway Construction

ID#: 21-22707

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: #2021-13 Project Town: New London

State#: #2021-13 FAP#: New London

Project: Repairs and Improvements to Marina Parking Lot (New London)

CLASSIFICATION	Hourly Rate	Benefits
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	36.45	34.44
2) Carpenters, Piledrivermen	34.53	25.64
2a) Diver Tenders	34.53	25.64
3) Divers	42.99	25.64
03a) Millwrights	35.64	26.49
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	52.25	22.55
4a) Painters: Brush and Roller	35.62	22.55
4b) Painters: Spray Only	38.62	22.55
4c) Painters: Steel Only	37.62	22.55
4d) Painters: Blast and Spray	38.62	22.55
4e) Painters: Tanks, Tower and Swing	37.62	22.55

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5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	39.0	29.91+3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	37.62 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	44.63	32.95
----LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	31.5	23.25
9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	31.75	23.25
10) Group 3: Pipelayers	32.0	23.25
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	32.0	23.25
12) Group 5: Toxic waste removal (non-mechanical systems)	33.5	23.25
13) Group 6: Blasters	33.25	23.25
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	32.5	23.25
Group 8: Traffic control signalmen	18.0	23.25
Group 9: Hydraulic Drills	32.25	23.25
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	33.73	23.25 + a
13b) Brakemen, Trackmen	32.76	23.25 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		

14) Concrete Workers, Form Movers, and Strippers	32.76	23.25 + a
15) Form Erectors	33.09	23.25 + a
----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	32.76	23.25 + a
17) Laborers Topside, Cage Tenders, Bellman	32.65	23.25 + a
18) Miners	33.73	23.25 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	40.22	23.25 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	40.02	23.25 + a
20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	38.04	23.25 + a
21) Mucking Machine Operator	40.81	23.25 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	30.16	27.16 + a
Three axle trucks; two axle ready mix	30.27	27.16 + a
Three axle ready mix	30.33	27.16 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	30.39	27.16 + a
Four axle ready-mix	30.44	27.16 + a
Heavy duty trailer (40 tons and over)	30.66	27.16 + a

Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	30.44	27.16 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	43.88	25.80 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	43.53	25.80 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	42.72	25.80 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	42.3	25.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24	41.65	25.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	41.65	25.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	41.31	25.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	40.94	25.80 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	40.51	25.80 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	40.04	25.80 + a
Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	37.81	25.80 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	37.81	25.80 + a
Group 12: Wellpoint Operator.	37.74	25.80 + a

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Group 13: Compressor Battery Operator.	37.11	25.80 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	35.87	25.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	35.43	25.80 + a
Group 16: Maintenance Engineer/Oiler	34.72	25.80 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	39.42	25.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	36.77	25.80 + a
**NOTE: SEE BELOW		
----LINE CONSTRUCTION----(Railroad Construction and Maintenance)--- -		
20) Lineman, Cable Splicer, Technician	48.19	6.5% + 22.00
21) Heavy Equipment Operator	42.26	6.5% + 19.88
22) Equipment Operator, Tractor Trailer Driver, Material Men	40.96	6.5% + 19.21
23) Driver Groundmen	26.5	6.5% + 9.00
23a) Truck Driver	40.96	6.5% + 17.76
----LINE CONSTRUCTION----		
24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.1	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20

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28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45

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Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

As of: May 18, 2021

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: May 18, 2021

Important Information:

For use with Building, Heavy/Highway, and Residential

Welders: Rate for craft to which welding is incidental.

*Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.

**Note: Hazardous waste premium $3.00 per hour over classified rate.

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $4.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson
3) Cranes (under 100 ton rated capacity)

Crane with boom including jib, 150 feet - $1.50 extra.

Crane with boom including jib, 200 feet - $2.50 extra.

Crane with boom including jib, 250 feet - $5.00 extra.

Crane with boom including jib, 300 feet - $7.00 extra.

Crane with boom including jib, 400 feet - $10.00 extra.

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

- Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of one apprentice in a specific trade.

Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work

- The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.
- Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.
- The annual adjustments will be posted on the Department of Labor's Web page: www.ctdol.state.ct.us.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.
- All subsequent annual adjustments will be posted on our Web Site for contractor access.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage.

- All Persons who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.
- All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)
- Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

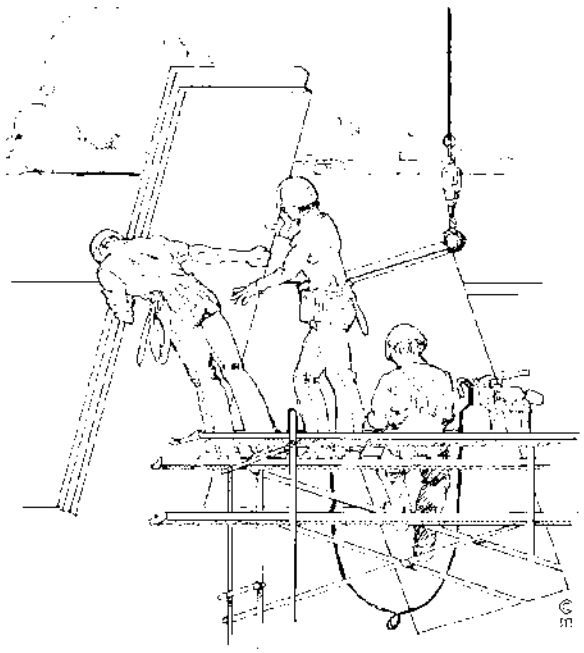
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

Construction Manager at Risk/General Contractor/Prime Contractor

I,_____of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____,_____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

⇨ Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine *"job classification"* on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- ***ELECTRICIANS***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***FORK LIFT OPERATOR***

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- ***GLAZIERS***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***INSULATOR***

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's Rate
1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

• Laborer's Rate
1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ****License required per Connecticut General Statutes: F-1,2,3,4.***

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Opportunity ⋆ Guidance ⋆ Support

CONNECTICUT DEPARTMENT OF LABOR

THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages
CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:	SUBCONTRACTOR NAME & ADDRESS	WORKER'S COMPENSATION INSURANCE CARRIER
		POLICY #
		EFFECTIVE DATE: EXPIRATION DATE:

PAYROLL NUMBER	Week-Ending Date	PROJECT NAME & ADDRESS

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY								$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER _____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____	_____	_____
(Signature)	(Title)	Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

Week-Ending Date:

Contractor or Subcontractor Business Name:

WEEKLY PAYROLL

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							

*IF REQUIRED

12/9/2013

WWS-CP2

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine
Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

STATUTE 31-55a

- SPECIAL NOTICE -

To: All State and Political Subdivisions,Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.

- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Section II

CITY OF NEW LONDON, CT
PUBLIC WORKS DEPARTMENT

GENERAL CONDITIONS AND SPECIFICATIONS

REQUEST FOR PROPOSALS FOR REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT, PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15, NEW LONDON, CONNECTICUT
RFP 2021-13

1.0 INTRODUCTION

1.1 The City of New London Public Works Department is requesting bids from qualified contractors in good standing for repairs and improvements to the Marina Parking Lot in the City of New London.

1.2 Contractors are required to comply with the instructions contained within these General Conditions and Specifications and to provide information where requested.

2.0 KEY EVENT DATES

2.1	Request for Bids Advertised	June 2, 2021
2.2	Mandatory Pre-Bid/Site Visit	June 14, 2021, 10:00 a.m.
2.3	Questions Due by	June 21, 2021, 4:00 p.m.
2.4	Bid Opening Purchasing Department, 13 Masonic Street	July 1, 2021, 2:00 p.m.

3.0 BID FORMS AND SUBMISSION INSTRUCTIONS

3.1 Ditto marks are not considered writing; shall not be used; and can be reason for non-acceptance of a bid.

3.2 All bids must be submitted in a sealed envelope, clearly marked "REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT RFP 2021-13" and received in the Purchasing Department office by the time of the bid opening defined in section 2.4 above. Bids, corrections and/or modifications received after the time City officials open the first bid, will not be accepted.

3.3 The bid form must be signed by an authorized agent of the submitting company.

3.4 All information submitted, must be in ink or typewritten. Mistakes may be crossed out and corrections inserted. The person signing the bid form must initial such corrections.

3.5 At the time of bid form submission, Contractors shall be presumed to have read, and be thoroughly familiar with all specifications in this document. Failure of any Contractor to receive or examine any form, instruction or document, shall not relieve any Contractor from obligations with respect to their bid.

3.6 The specifications listed are to be interpreted as meaning those acceptable to the City of New London. Substitutions that are "an approved equal," will be considered.

3.7 The completed bid package shall be in conformance with all other requirements as stated herein.

4.0 MISCELLANEOUS

4.1 The City of New London is exempt from Connecticut Sales and Use Taxes and Federal Excise Taxes. Contractors shall avail themselves of these exemptions.

4.2 The City of New London reserves the right to accept any, all or any part of bids, to waive any informalities, to take into account the residency and business location of bidders within the City of New London, and to award the bid deemed by the City of New London to be in its best interest. The lowest price shall not be the sole determining factor when awarding the contract for the proposed work.

4.3 The bid price(s) on the submitted bid form shall be held firm from the date of submission through December 31, 2021.

4.4 Completion shall be determined by the City of New London, through an authorized representative.

4.5 Successful Contractor shall obtain all Local, State and Federal permits, as deemed necessary.

4.6 General questions concerning these General Conditions and Specifications shall be directed to:

Brian Sear
Director of Public Works
111 Union Street
New London, CT 06320
bsear@newlondonct.org
Phone: (860) 961-2403

Thomas Quintin
Engineering Technician
111 Union Street
New London, Ct. 06320
tquintin@newlondonct.org
Phone: (860)447-5241

Joshua Montague
Accounting Purchasing Agent
jmontague@newlondonct.org
Phone: (860)447-5215

5.0 SPECIFICATIONS

5.1 General

Public Safety
The Contractor shall furnish and install barricades, warning tape, or other acceptable material to clearly demarcate and protect any excavated areas.

Disposal of Surplus Material
Surplus materials are the responsibility of the Contractor and shall be properly disposed of in accordance with all local, state and federal regulations.

This Bid Specification pertains to the Contractor's requirements. The Contractor shall furnish all labor, material and equipment to perform the work.

5.2 Scope of Project

The scope of work for this project is generally as follows:
The intent of this contract is for the City of New London to perform specified repairs and improvements to the Marina Parking Lot in the City of New London.

5.3 Description

The work shall consist of the repairs and improvements to the Marina Parking Lot in the City of New London as described in Section 5.4.Reference Section 5.5 for list of technical specifications and drawings.

5.4 **Scope of Work**:

1. General Mobilization/Demobilization and Coordination.
2. Site Preparation, removal and disposal of designated and related materials, placement of islands and curbing, placement of pavement, other related site materials, along with all other work required for the satisfactory performance of this work item.
3. Installation of catch basins, drainage structures, piping, other related drainage materials, along with all other work required for the satisfactory performance of this work item.
4. Installation of lighting, electrical infrastructure and related materials, along with all other work required for the satisfactory performance of this work item.
5. Installation of fencing related site materials, along with all other work required for the satisfactory performance of this work item.
6. Installation of striping, related traffic markings and signage, along with all other work required for the satisfactory performance of this work item.
7. Miscellaneous coordination and/or items of work not otherwise noted but depicted on/in the Drawings or Specifications.

5.5 **Specifications and List of Drawings**:

The following Specifications and Drawings are included and made part of this Contract:

SECTION 010100

SUMMARY OF WORK

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.

1.02 INTENT OF PLANS AND SPECIFICATIONS

A. The intent of the Plans and Specifications is to describe The Work which the Contractor undertakes to do, in full compliance with the Contract, and it is understood that the Contractor will furnish, unless otherwise provided in the Contract, all materials, machinery, equipment, tools, supplies, transportation, labor, and all other incidentals necessary to the satisfactory prosecution and completion of the Work. The Plans and Specifications are complementary, and what is called for by either is as binding as if called for by both.

B. The Supplemental Conditions shall control where in conflict with the Standard Specifications. However, such portions of the Standard Specifications not in conflict or not rendered meaningless by the Special provisions shall remain in full force and effect and be binding on the parties hereto.

C. In the event the Contractor discovers any error or discrepancy in the Contract Documents, he shall immediately call upon the Engineer for his decision. The Engineer shall then make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the Specifications, Special Provisions, Plans and other Contract Documents, as construed by him and his decision shall be final.

1.03 SUMMARY OF WORK

A. The following items shall be considered as the Base Bid:

1. General Mobilization/Demobilization and Coordination.

This work consists of all labor, materials, tools and equipment required for setting-up general plant, storage/staging areas and facilities, as well as the procurement of all bonds, permits, and insurance necessary for this project and as required by State Laws and City Ordinances; and the general mobilization of equipment required for the completion of the work shown on the Contract Documents. The cost of this item shall include all permits and fees required to perform the project, unless otherwise

noted in the Contract Documents, and all expenses for the de-mobilization after the work has been completed. If a building permit is required, it will be the contractor's responsibility to get the necessary permit to perform the repair work, unless noted otherwise in the documents.

Electricity (power) and water required for the completion of the work shall be furnished by the Owner at existing fixtures or outlets if existing. (The Owner will not provide any temporary pipes, cables, etc.) The contractor shall provide temporary lighting in the work areas, as required, during the work. If the existing capacity is insufficient for the contractor's use, the contractor is responsible for supplementing existing capacity as needed.

This work shall also consist of items not otherwise specifically indicated or shown on the plans, but which are ancillary to the specified scope of work.

Work shall include the furnishing, installing, maintaining, relocating and removing of all signs, barricades, cones, warning lights, and other safety control devices and temporary signage required for the proper execution of the project. The Engineer and the Owner shall review the safety control device placement before work begins and also prior to the beginning of work on any subsequent construction stages. Any deficiencies in the location or arrangement of devices shall be corrected by the contractor before starting work.

2. Site Preparation, removal and disposal of designated and related materials, placement of islands and curbing, placement of pavement, other related site materials, along with all other work required for the satisfactory performance of this work item.

3. Installation of catch basins, drainage structures, piping, other related drainage materials, along with all other work required for the satisfactory performance of this work item.

4. Installation of lighting, electrical infrastructure and related materials, along with all other work required for the satisfactory performance of this work item.

5. Installation of fencing related site materials, along with all other work required for the satisfactory performance of this work item.

6. Installation of striping, related traffic markings and signage, along with all other work required for the satisfactory performance of this work item.

7. Miscellaneous coordination and/or items of work not otherwise noted but depicted on/in the Drawings or Specifications.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 0 0100

SECTION 010260 - UNIT PRICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

A. This Section specifies administrative and procedural requirements for unit prices.

1. A unit price is an amount proposed by Bidders and stated on the Bid Form as a price per unit of measurement for materials and/or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.

2. Unit prices include all necessary labor, materials, equipment and incidentals, overhead, profit and applicable taxes.

3. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

B. Schedule: A "Unit Price Schedule" is included at the end of this Section; reference Part 3.01. Specification Sections referenced in the Schedule contain requirements for materials and methods described under each unit price.

1. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.01 UNIT PRICE SCHEDULE

A. Unit prices for all items are as shown in the Bid Forms shall be considered an integral part of this Section.

3.02 PAYMENT FOR EXTRA WORK

A. Extra work which results from any of the changes as specified and for which no unit price is provided in the Contract, shall not be started until receipt of a written authorization or work order from the Owner, which authorization shall state the items of work to be performed and the method of payment for each item. The Contractor shall not be entitled to payment for work performed without such authorization.

B. If it is practicable to pay for Extra Work on the unit price, a fair and equitable sum shall be fixed by agreement of the parties and shown in an Extra Work Order Agreement. Work to be performed directly by the Contractor should be submitted showing a detailed breakdown of labor and material costs to which a fifteen percent markup should be added for overhead and profit.

C. Work to be performed by the subcontractor should be submitted showing a detailed breakdown of labor and materials by the subcontractor to which a five percent markup should be added by the Contractor for overhead and profit.

D. When the Owner deems it impracticable to handle any Extra Work on the unit price, or if agreement of the parties cannot be reached, the work may be ordered done and paid for on a Force Account basis, as follows:

1. Labor: The Contractor will be paid the actual amount of wages for all labor and foremen who are actually engaged in such work, to which cost shall be added fifteen percent of the sum of such wages. A foreman shall not be used when there are less than three laborers employed, except with the written consent of the Engineer.

2. Welfare and Pension Fund: The Contractor will receive the actual additional amount of contributions paid for regular and uniform health and welfare benefits, pension fund benefits or other benefits, to which zero percent shall be added, when such amounts are required by collective bargaining agreement or other employment contract generally applicable to the class of labor employed on the Work.

3. Insurance and Tax: The Contractor will receive the actual cost or increase in cost of Contractor's Public Liability and Property Damage insurance, Workmen's Compensation tax, and Social Security tax required for Force Account work. The Contractor shall furnish satisfactory evidence of the cost or rates paid for such insurance and tax.

4. Materials: The Contractor will receive the actual cost for all materials, including freight charges as shown by the original paid invoices, which become an integral part of the finished work, to which shall be added 15 percent of the sum thereof.

   The Contractor will be reimbursed for any materials used in the construction of such work as sheeting, false-work, form lumber, etc., which are not an integral part of the finished work. The amount of reimbursement shall be agreed upon in writing before such work is begun, and no percent shall be added. The salvage value of such materials shall be taken into consideration in the reimbursement agreed upon.

5. Equipment: For any machinery or special equipment (other than small tools), the use of which has been authorized by the Engineer, the Contractor will be paid as following:

   a. For his own equipment, he will be paid by the monthly rate in accordance with the latest edition of Means Construction Cost Data.

   b. For rental equipment, he will be paid for the actual invoice amount as shown by the original paid invoices.

   The equipment shall be of a type and size reasonably required to complete the Extra Work. Compensation will not be allowed for transportation to or from the Work or for the time required for setting up and removing the equipment from the Work or for equipment of a type, size or condition unsuitable for the Work.

3.03 CANCELED ITEMS

A. It shall be in the sole judgment and sole discretion of the Engineer or its representatives to cancel or alter any or all portions of the Contract due to circumstances either unknown at the time of bidding or arising after the Contract was entered into. Should such actions result in elimination or non-completion of any portion of the Contract, payment shall be made as follows:

1. For the canceled work completed by the Contractor, payment shall be made to the Contractor for the actual number of units or items completed at the Contract unit prices. For canceled work partially completed by the Contractor, payment shall be made to the Contractor for the partially completed units or items as specified in Payment for Extra Work.

2. For materials obtained by the Contractor for the unfinished (uncompleted) portions of the canceled work, that have been inspected, tested and accepted by the Engineer, and that have not been incorporated in the canceled work, payment shall be made to the Contractor for the actual costs for all such materials, including freight charges, as shown by the original paid invoices, to which shall be added 10 percent of the sums thereof. The materials, when so paid for by the Owner, shall become the property of the Owner.

3.04 PARTIAL PAYMENTS

A. The Engineer shall review the Contractor's pay request for materials in-place and completed, the amount of work performed, and the value thereof, at the Contract Unit Prices. From the amount so determined there shall be deducted five percent to be retained until after the completion of the entire work to the satisfaction of the Engineer, and the balance certified to the Owner for payment. No payment shall be made for stored materials.

B. If stored matter is lost or damaged prior to incorporation in the Work, the materials shall be replaced or satisfactory repaired at the Contractor's expense. The Contractor shall pay and be responsible for cost of storage, if any, of said materials.

3.05 ADJUSTMENT OF UNIT PRICES BASED ON ACTUAL QUANTITIES PERFORMED

A. For unit price bid items, the quantities as listed in the schedule of bid items are estimates only. The Contractor will be required to complete the work specified in accordance with the Contract and at the quoted unit prices, whether quantities greater or less than the estimated amounts are involved.

END OF SECTION 010260

SECTION 010270

APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.01 Related Documents

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 Summary

This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

1.03 Application for Payment

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect/Engineer and paid for by the Owner.

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction Work covered by each Application or Payment is the period indicated in the Agreement.

C. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment. Contractor shall note that although AIA forms are being utilized for document format, AIA Contract Terms do not apply.

D. Application Preparation: Complete every entry on the form, inclusive of notarization and execution by person authorized to sign legal documents on behalf of the Owner. Incomplete applications will be returned without action.

1. Entries shall match data on the Bid Form’s Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.

2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

3. Quantity of "Stored Materials" shall not be submitted for payment. **Contractor shall only be allowed to apply for payment for "Completed Work."**

4. Contractor shall include an updated schedule with each payment requisition.

E. Transmittal: Submit three (3) executed copies of each Application for Payment to the Engineer/Architect by means ensuring receipt within 24 hours; one copy shall be complete, including waivers of lien and similar attachments, when required.

1. Submit one (1) draft copy of each Application to the Engineer/Architect and one (1) to the Owner for purposes of review prior to executing the official submission.

2. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Engineer/Architect.

F. Waivers of Mechanics Lien: With each Application for Payment submit waivers of mechanics liens from subcontractors or sub-subcontractors and suppliers for the construction period covered by the current application.

1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.

2. When an application shows completion of an item, submit final or full waivers.

3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.

4. Waiver Delays: Submit each Application for Payment with the Contractor's waiver of mechanics lien for the period of construction covered by the application.

a. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of Work covered by the application who could lawfully be entitled to a lien.

5. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following in addition to requirements of the General and Special Conditions:

1. List of subcontractors
2. List of principal suppliers and fabricators
3. Schedule of Values to match Bid Form
4. Contractor's Construction Schedule (preliminary if not final)
5. Schedule of principal products
6. Schedule of unit prices
7. Schedule of Submittals (preliminary if not final)
8. List of Contractor's staff assignments
9. List of Contractor's principal consultants
10. Copies of building permits
11. Copies of authorizations and licenses from governing authorities for performance of the Work
12. Initial progress report
13. Report of pre-construction meeting
14. Certificates of insurance and insurance policies
15. Performance and payment bonds (if required)
16. Data needed to acquire Owner's insurance
17. Initial settlement survey and damage report, if required

H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment; this application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

I. Administrative actions and submittals that shall proceed or coincide with this application include:

1. Occupancy permits and similar approvals
2. Warranties (guarantees)
3. Maintenance Agreements
3. Test/adjust/balance records
4. Maintenance Instructions
5. Meter readings
6. Start-up performance reports
7. Change Over information related to Owner's occupancy, use, operation and maintenance

8. Final Cleaning
9. Application for reduction of retainage, and consent of surety
10. Advice on shifting insurance coverages
11. Final progress photographs
12. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion
13. Requirements of the General and Special Conditions

J. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final payment Application for Payment include the following:

1. Project Completion closeout requirements
2. Completion of items specified for completion after Substantial Completion
3. Transmittal of required Project construction records to Owner
4. Proof that taxes, fees and similar obligations have been paid
5. Removal of temporary facilities and services
6. Removal of surplus materials, rubbish and similar elements
7. Requirements of the General and Special Conditions

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010270

SECTION 010350

MODIFICATION PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including, General and Supplementary Conditions and other Division I Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing contract modifications. Refer to General Conditions for additional information.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division I Section 01026 "Unit Prices"

2. Division I Section 01027 "Applications for Payment" for administrative procedures Governing Applications for Payment

3. Division I Section 01300 "Submittals" for requirements for the Construction Schedule

4. Division I Section 01631 "Product Substitutions" for administrative procedures for handling requests for substitutions made after award of the Contract

1.03 CHANGE ORDER PROPOSAL REQUESTS

A. Owner Initiated Proposal Requests: The Engineer/Architect will issue a detailed description of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal requests issued are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.

2. Submit an estimate of cost necessary to execute the change to the Engineer/Architect for the Owner's review.

    a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

    b. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.

    c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

B. Contractor Initiated Proposals: When latent or unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Engineer/Architect.

1. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.

2. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

3. Indicate applicable delivery charges, equipment rental, and amounts of trade discounts.

4. Comply with requirements in Section 01631, Product Substitutions, if the proposed change requires an equal or substitution of one product or system for a product or system specified.

C. Proposal Request Form: Use "Change Order Request" proposal form as required by Owner for Change Order Proposal Requests.

1.04 CONSTRUCTION CHANGE DIRECTIVE

A. If the Owner and the Contractor disagree on the terms of a Proposal Request, the Engineer/Architect may issue a Construction Change Directive on a "Construction Change Directive" form as required by the Owner. The Construction Change Directive instructs the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.

B. Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

2. The final value shall be negotiated based on the supporting data to determine the value of the work.

1.05 CHANGE ORDER PROCEDURES

A. With the Owner's approval of a Proposal Request, the Engineer/Architect will issue a Change Order for signatures of the Engineer/Architect, Owner and the Contractor on a "Change Order" form as required by the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010350

SECTION 010400

PROJECT COORDINATION

PART 1 - GENERAL

1.01 Related Documents

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 Summary

A. This Section specifies administrative and supervisory requirements necessary for project coordination including, but not necessarily limited to:

1. Coordination
2. Administrative and supervisory personnel
3. General installation provisions
4. Cleaning and protection

B. Progress meetings, coordination meetings and pre-installation conferences are to be determined in consultation with the Owner.

C. Requirements for the Contractor's Construction Schedule are included in Section "Submittals".

1.03 Coordination

A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.

2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.

B. When necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of schedules
2. Installation and removal of temporary facilities
3. Delivery and processing of submittals
4. Progress meetings
5. Project close out activities

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

1.04 Submittals

A. Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.

1. Show the interrelationship of components shown on separate Shop Drawings.

2. Indicate required installation sequences.

3. Comply with requirements contained in Section "Submittals".

B. Within 15 calendar days of the Contractor's receipt of the official Notice to Proceed, the Contractor shall submit a listing of principal staff assignments, including the Superintendent and other personnel in attendance at the site. Individuals should be identified, particularly key personnel. The listing of staff should include a brief description of individual duties and responsibilities; addresses, telephone numbers, pager numbers and portable telephone numbers as appropriate so that key personnel can be reached at all times.

1. Post copies of the list in the project meeting room, the temporary field office, and each temporary telephone.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 General Installation Provisions

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's written installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and then again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing work. Secure Work true to line and level. Allow for expansion and building movement.

E. Provide uniform joint widths in exposed Work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Engineer for final decision.

F. Measurements and dimensions should all be rechecked before starting each and every installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for the purpose of inspection.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Engineer for final decision.

3.02 Cleaning and Protection

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading
2. Excessively high or low temperatures
3. Air contamination or pollution
4. Water or ice
5. Solvents and chemicals
6. Puncture and abrasion
7. Heavy traffic
8. Soiling, staining and corrosion
9. Bacteria
10. Combustion
11. Electrical current
12. Unusual wear or other misuse
13. Contact between incompatible materials
14. Destructive testing

15. Misalignment
16. Excessive weathering and unprotected storage
17. Improper shipping and handling
18. Theft and vandalism

END OF SECTION 010400

SECTION 010450

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1. Requirements of this Section apply to existing plumbing and electrical installations.

C. Demolition of selected portions of the building for alterations is included in Section "Selective Demolition."

1.03 SUBMITTALS:

A. Cutting and Patching Proposal: Where approval of procedures for cutting and patching is required before proceeding, submit a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:

1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.

2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.

3. List products to be used and firms or entities that will perform the Work.

4. Indicate dates when cutting and patching is to be performed.

5. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.

6. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.

7. Approval by the Consultant to proceed with cutting and patching does not waive the Consultant's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.04 QUALITY ASSURANCE:

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

a. Foundation construction
b. Bearing and retaining walls
c. Structural concrete
d. Structural steel
e. Lintels
f. Timber and primary wood framing
g. Structural decking
h. Stair systems
i. Miscellaneous structural metals
j. Exterior curtain wall construction
k. Equipment supports
l. Piping, ductwork, vessels and equipment

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:

a. Shoring, bracing, and sheeting
b. Primary operational systems and equipment
c. Air or smoke barriers

d. Water, moisture, or vapor barriers
e. Membranes and flashings
f. Fire protection systems
g. Noise and vibration control elements and systems
h. Control systems
i. Communication systems
j. Conveying systems
k. Electrical wiring systems

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Consultant's opinion, reduce the building's aesthetic qualities, or results in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

1. If possible retain the original installer or fabricator to cut and patch the following categories of exposed Work, or if it is not possible to engage the original installer or fabricator, engage another recognized experienced and specialized firm:

a. Processed concrete finishes
b. Stonework and stone masonry
c. Ornamental metal
d. Matched-veneer woodwork
e. Preformed metal panels
f. Window wall system
g. Stucco and ornamental plaster
h. Acoustical ceilings
i. Terrazzo
j. Finished wood flooring
k. Fluid-applied flooring
l. Carpeting
m. Aggregate wall coating
n. Wall covering
o. Swimming pool finishes
p. HVAC enclosures, cabinets or covers

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Use materials that are identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 – EXECUTION

3.01 INSPECTION:

A. Before cutting existing surfaces examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

1. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.02 PREPARATION:

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building, but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer and comply with the original installer's recommendations.

1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.

2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.

3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.

4. Comply with requirements of applicable Sections of Division-2 where cutting and patching requires excavating and backfilling.

5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.

    a. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing the patch, after the patched area has received primer and second coat and in accordance with the manufacturer's written recommendations.

4. Patch, repair or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.04 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 010450

SECTION 010950

REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. Indicated: The term "indicated" refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.

C. Directed: Terms such as "directed," "requested," "authorized," "selected," "approved," "required," and "permitted" mean "directed by the Consultant," "requested by the Consultant," and similar phrases.

D. Approve: The term "approved," where used in conjunction with the Consultant's action on the Contractor's submittals, applications, and requests, is limited to the Consultant's duties and responsibilities as stated in the Conditions of the Contract.

E. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

F. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."

G. Install: The term "install" is used to describe operations at Project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."

H. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

I. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

1. The term "experienced," when used with the term "Installer," means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.

2. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also does not imply that requirements specified apply exclusively to trades persons of the corresponding generic name.

3. Assignment of Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

J. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

K. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.03 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTER FORMAT numbering system.

B. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated shall be interpolated as the sense required. Singular words will be interpreted as plural and plural words interpreted as singular where applicable and the context of the Contract Documents so indicates.

2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.

a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.04 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Consultant for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Consultant for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

F. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. The following acronyms or abbreviations, as referenced in Contract Documents, are defined to mean the associated names. Names and addresses are subject to change and are believed to be, but are not assured to be, accurate and up to date as of date of Contract Documents.

AA Aluminum Association
900 19th St., NW, Suite 300
Washington, DC 20006 (202) 862-5100

AASHTO Amer. Assoc. of State Highway and Transportation Officials
444 North Capitol St., Suite 225
Washington, DC 20001 (202) 624-5800

ACI American Concrete Institute
P.O. Box 19150
Detroit, MI 48219 (313) 532-2600

ACIL American Council of Independent Laboratories
1725 K St., NW
Washington, DC 20006 (202) 887-5872

AI Asphalt Institute
P.O. Box 14052
Lexington, KY 40512-4052 (606) 288-4960

AIA American Institute of Architects
1735 New York Ave., NW
Washington, DC 20006 (202) 626-7300

APA American Plywood Assoc.
P.O. Box 11700
Tacoma, WA 98411 (206) 565-6600

ARMA Asphalt Roofing Manufacturers Assoc.
6288 Montrose Rd.
Rockville, MD 20852 (301) 231-9050

ASC Adhesive and Sealant Council
1627 K Street, NW, Suite 1000
Washington, DC 20006 (202) 452-1500

ASPE American Society of Plumbing Engineers
3617 Thousand Oaks Blvd., Suite 210
Westlake, CA 91362 (805) 495-7120

ASTM American Society for Testing and Materials
1916 Race St.
Philadelphia, PA 19103 (215) 299-5400

AWS American Welding Society
550 LeJeune Road, NW
P.O. Box 351040
Miami, FL 33135 (305) 443-9353

BANC Brick Association of North Carolina
P.O. Box 13290
Greensboro, NC 27415-3290 (919) 273-5566

BHMA Builders' Hardware Manufacturers Assoc.
355 Lexington Ave., 17th Floor
New York, NY 10017 (212) 661-4261

BIA Brick Institute of America
11490 Commerce Park Drive, Suite 300
Reston, VA 22091 (703) 620-0010

CRSI Concrete Reinforcing Steel Institute
933 Plum Grove Rd.
Schaumburg, IL 60173 (312) 517-1200

EJMA Expansion Joint Manufacturers Assoc.
25 N. Broadway
Tarrytown, NY 10591 (914) 332-0040

HPMA Hardwood Plywood Manufacturers Assoc.
1825 Michael Farraday Drive
P.O. Box 2789
Reston, VA 22090 (703) 435-2900

IEEE Institute of Electrical and Electronic Engineers
345 E. 47th St.
New York, NY 10017 (212) 705-7900

NAPA National Asphalt Pavement Assoc.
Calvert Building, Suite 620
6811 Kenilworth Ave.
Riverdale, MD 20737 (301) 779-4880

NCMA National Concrete Masonry Assoc.
P.O. Box 781
Herndon, VA 22070 (703) 435-4900

NEC National Electric Code (from NFPA)

NECA National Electrical Contractors Assoc.
7315 Wisconsin Ave.
Bethesda, MD 20814 (301) 657-3110

NFPA National Fire Protection Assoc.
One Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101 (617) 770-3000

NPCA National Paint and Coatings Assoc.
1500 Rhode Island Ave., NW
Washington, DC 20005 (202) 462-6272

NRCA National Roofing Contractors Assoc.
One O'Hare Centre
6250 River Road, Suite 8030
Rosemont, IL 60018 (708) 318-6722

PCA Portland Cement Assoc.
5420 Old Orchard Road
Skokie, IL 60077 (312) 966-6200

PCI Prestressed Concrete Institute
175 W. Jackson Blvd.
Chicago, IL 60604 (312) 786-0300

PDI Plumbing and Drainage Institute
800 Turnpike St, Suite 300
North Andover, MA 01845 (800) 589-8956

RMA Rubber Manufacturers Assoc.
1400 K St., NW
Washington DC 20005 (202) 682-4800

SSPC Steel Structures Painting Council
4400 Fifth Ave.
Pittsburgh, PA 15213 (412) 268-3327

WRI Wire Reinforcement Institute
1760 Reston Parkway, Suite 403
Reston, VA 22090 (703) 790-9790

G. Federal Government Agencies: Names and titles of federal government standard or Specification producing agencies are often abbreviated. The following acronyms or abbreviations referenced in the Contract Documents indicate names of standard or Specification producing agencies of the federal government. Names and addresses are subject to change but are believed to be, but are not assured to be, accurate and up to date as of the date of the Contract Documents.

CE Corps of Engineers
(U.S. Department of the Army)
Chief of Engineers - Referral
Washington, DC 20314 (202) 272-0660

CFR Code of Federal Regulations
Available from the Government Printing Office
N. Capitol St. between G and H St. NW
Washington, DC 20402 (202) 783-3238
(Material is usually first published in the "Federal Register")

CPSC Consumer Product Safety Commission
5401 Westbard Ave.
Bethesda, MD 20816 (800) 638-2772

CS Commercial Standard
(U.S. Department of Commerce)
Government Printing Office
Washington, DC 20402 (202) 377-2000

DOC Department of Commerce
14th St. and Constitution Ave., NW
Washington, DC 20230 (202) 377-2000

DOT Department of Transportation
400 Seventh St., SW
Washington, DC 20590 (202) 366-4000

EPA Environmental Protection Agency
401 M St., SW
Washington, DC 20460 (202) 382-2090

FAA Federal Aviation Administration
(U.S. Department of Transportation)
800 Independence Ave., SW
Washington, DC 20590 (202) 366-4000

NIST National Institute of Standards and Technology
(U.S. Department of Commerce)
Gaithersburg, MD 20899 (301) 975-2000

OSHA Occupational Safety and Health Administration
(U.S. Department of Labor)
Government Printing Office
Washington, DC 20402 (202) 523-6091

PS Product Standard of NBS
(U.S. Department of Commerce)
Government Printing Office
Washington, DC 20402 (202) 783-3238

1.05 GOVERNING REGULATIONS/AUTHORITIES

A. The Consultant has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the Work.

B. Copies of Regulations: Obtain copies of the applicable regulations and retain at the Project Site, available for reference by parties who have a reasonable need for such reference.

1.06 SUBMITTALS

A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010950

SECTION 012000

PROJECT MEETINGS

PART 1 - GENERAL

1.01 Related Documents

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 Summary

A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:

1. Pre-Construction Conference
2. Pre-Installation Conferences
3. Coordination Meetings
4. Progress Meetings

B. Construction schedules are specified in another Division-1 Section.

1.03 Pre-Construction Conference

A. The Owner or his representative shall schedule a pre-construction conference and organizational meeting at the Project Site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees: The Owner, Architect/Engineer and their consultants, the Program Manager, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

C. Agenda: Discuss items of significance that could affect progress including such topics as:

1. Tentative construction schedule
2. Critical Work sequencing

3. Designation of responsible personnel
4. Procedures for processing field decisions and Change Orders
5. Procedures for processing Applications for Payment
6. Distribution of Contract Documents
7. Submittal of Shop Drawings, Product Data and Samples
8. Preparation of record documents
9. Use of the premises
10. Office, Work and storage areas
11. Equipment deliveries and priorities
12. Safety procedures
13. First-aid
14. Security
15. Housekeeping
16. Working hours

1.04 Pre-Installation Conferences

A. The Contractor or his representative shall conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The Installer and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Architect and owner of scheduled meeting dates.

1. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

a. Contract Documents
b. Options
c. Related Change Orders
d. Purchases
e. Deliveries
f. Shop Drawings, Product Data and quality control Samples
g. Possible conflicts
h. Compatibility problems
i. Time schedules
j. Weather limitations
k. Manufacturer's recommendations
l. Compatibility of materials
m. Acceptability of substrates
n. Temporary facilities

o. Space and access limitations
p. Governing regulations
q. Safety
r. Inspection and testing requirements
s. Required performance results
t. Recording requirements
u. Protection

2. The Contractor or his representative shall record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner and Architect.

3. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.05 Coordination Meetings

A. The Contractor shall conduct project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. The Contractor shall record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.06 Progress Meetings

A. The Owner or his representative shall conduct progress meetings at the Project Site at regularly scheduled intervals.

B. Attendees: In addition to representatives of the Owner and Engineer/Architect, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including such items as:

   a. Interface requirements
   b. Time
   c. Sequences
   d. Deliveries
   e. Off-site fabrication problems
   f. Access
   g. Site utilization
   h. Temporary facilities and services
   i. Hours of Work
   j. Hazards and risks
   k. Housekeeping
   l. Quality and Work standards
   m. Change Orders
   n. Documentation of information for payment requests

3. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule prior to the next meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 012000

SECTION 013000

SUBMITTALS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including:

1. Contractor's construction schedule
2. Submittal schedule
3. Daily construction reports
4. Shop Drawings
5. Product Data
6. Samples

B. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:

1. Permits
2. Applications for payment
3. Performance and payment bonds
4. Insurance certificates
5. List of Subcontractors

C. The Schedule of Values submittal is included in Section "Applications for Payment."

D. Inspection and test reports are included in Section "Quality Control Services."

1.03 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.

2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

    a. The Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.

    a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Consultant will promptly advise the Contractor when a submittal being processed must be delayed for coordination.
    b. If an intermediate submittal is necessary, process the same as the initial submittal.
    c. Allow two weeks for reprocessing each submittal.
    d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Consultant sufficiently in advance of the Work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.

2. Include the following information on the label for processing and recording action taken.

    a. Project name
    b. Date
    c. Name and address of Consultant
    d. Name and address of Contractor
    e. Name and address of subcontractor
    f. Name and address of supplier
    g. Name of manufacturer

h. Number and title of appropriate Specification Section
i. Drawing number and detail references, as appropriate

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to Consultant using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.

1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

2. Transmittal Form: Use AIA Document G 810.

1.04 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Phasing: Provide notations on the schedule to show how the sequence of the Work is affected by requirements for phased completion to permit Work by separate Contractors and partial occupancy by the Owner prior to Substantial Completion.

B. Work Stages: Indicate important stages of construction for each major portion of the Work, including testing and installation.

C. Distribution: Following response to the initial submittal, print and distribute copies to the Consultant, Owner, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
2. Contractor shall include an updated schedule with each payment requisition.

1.05 SUBMITTAL SCHEDULE

A. After development and acceptance of the Contractor's construction schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for establishment of the Contractor's construction schedule.

1. Coordinate submittal schedule with the list of subcontracts, schedule of values and the list of products as well as the Contractor's construction schedule.

2. Prepare the schedule in chronological order; include submittals required during the first 90 days of construction. Provide the following information:

    a. Scheduled date for the first submittal
    b. Related Section number
    c. Submittal category
    d. Name of subcontractor
    e. Description of the part of the Work covered
    f. Scheduled date for re-submittal
    g. Scheduled date the Consultant's final release or approval

B. Distribution: Following response to initial submittal, print and distribute copies to the Consultant's, Owner, subcontractors, and other parties required to comply with submittal dates indicated. Post copies in the Project meeting room and field office.

1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

C. Schedule Updating: Revise the schedule after each meeting or activity, where revisions have been recognized or made. Issue the updated schedule concurrently with report of each meeting.

1.06 DAILY CONSTRUCTION REPORTS

A. Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Consultant at weekly intervals:

1. List of subcontractors at the site
2. Approximate count of personnel at the site
3. High and low temperatures, general weather conditions
4. Accidents and unusual events
5. Meetings and significant decisions
6. Stoppages, delays, shortages, losses
7. Meter readings and similar recordings
8. Emergency procedures
9. Orders and requests of governing authorities
10. Change Orders received, implemented
11. Services connected, disconnected

12. Equipment or system tests and start-ups
13. Partial Completions, occupancies
14. Substantial Completions authorized

1.07 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:

1. Dimensions
2. Identification of products and materials included
3. Compliance with specified standards
4. Notation of coordination requirements
5. Notation of dimensions established by field measurement
6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2" x 11" but no larger than 36" x 48"
7. Initial Submittal: Submit one correctable translucent reproducible print and one blue or black-line print for the Consultant's review; the reproducible print will be returned
8. Initial Submittal: Submit 2 blue or black-line prints for the Consultant's review; one will be returned
9. Final Submittal: Submit 5 blue or black-line prints; submit 7 prints where required for maintenance manuals. 1 print will be retained; the remainder will be returned
10. Final Submittal: Submit 5 blue or black-line prints and 7 additional prints where required for maintenance manuals, plus the number of prints needed by the Consultant for distribution. 2 prints will be retained; the remainder returned

    a. One of the prints returned shall be marked-up and maintained as a "Record Document."

11. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
12. Submission in electronic format (PDF) may be acceptable as approved by Owner/Engineer.

C. Coordination drawings are a special type of Shop Drawing that show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or function as intended.

1. Preparation of coordination Drawings is specified in section "Project Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
2. Submit coordination Drawings for integration of different construction elements. Show sequences and relationships of separate components to avoid conflicts in use of space.

1.08 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:

a. Manufacturer's printed recommendations
b. Compliance with recognized trade association standards
c. Compliance with recognized testing agency standards
d. Application of testing agency labels and seals
e. Notation of dimensions verified by field measurement
f. Notation of coordination requirements

2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

3. Preliminary Submittal: Submit a preliminary single-copy of Product Data where selection of options is required.

4. Submittals: Submit 5 copies of each required submittal; submit 7 copies where required for maintenance manuals. The Consultant will retain one, and will return the others marked with action taken and corrections or modifications required.

    a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

5. Submission in electronic format (PDF) may be acceptable as approved by Owner/Engineer.

6. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

    a. Do not proceed with installation until an applicable copy of Product Data applicable is in the installer's possession.
    b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.09 SAMPLES

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.

1. Mount, display, or package Samples in the manner specified to facilitate review of qualities indicated. Prepare Samples to match the Consultant's Sample. Include the following:

    a. Generic description of the Sample
    b. Sample source
    c. Product name or name of manufacturer
    d. Compliance with recognized standards
    e. Availability and delivery time

2. Submit Samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units (not less than 3), that show approximate limits of the variations.

b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.

c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.

3. Preliminary submittals: Where Samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.

a. Preliminary submittals will be reviewed and returned with the Consultant's mark indicating selection and other action.

4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, submit 4 sets; three will be returned marked with the action taken.

5. Maintain sets of Samples, as returned, at the Project site, for quality comparisons throughout the course of construction.

a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

b. Sample sets may be used to obtain final acceptance of the construction associated with each set.

B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal forms.

1. Field Samples specified in individual Sections are special types of Samples. Field Samples are full-size examples erected on site to illustrate finishes, coatings, or finish materials and to establish the standard by which the Work will be judged.

a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.10 ARCHITECT'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Consultant will review each submittal, mark to indicate action taken, and return promptly.

1. Compliance with specified characteristics is the Contractor's responsibility.

B. Action Stamp: The Consultant will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:

1. Final Unrestricted Release: Where submittals are marked "Accepted," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

2. Final-But-Restricted Release: When submittals are marked "Accepted as Noted," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.

3. Returned for Re-submittal: When submittal is marked "Not Accepted, Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.

a. Do not permit submittals marked "Not Accepted, Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.

4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required."

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION (Not Applicable).

END OF SECTION 013000

SECTION 013100

PROSECUTION AND PROGRESS

PART 1 - GENERAL

1.01 Related Documents

Drawings and general provisions of contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 Date For Completion

A. The Contractor shall complete the Work on or before the date or within the time specified in the Contract, unless that date or time is duly extended according to the Contract.

1.03 Progress Schedule

A. The Contractor shall submit to the Engineer for approval by the Owner, within ten (10) calendar days following the award of contract, a progress schedule, showing the order in which the Contractor proposes to carry out the Work, the dates on which he will start controlling items, and the contemplated dates for completing. The Contractor's submission may be a critical path flow chart, bar graph, or other appropriate device of the Contractor's choice, and shall clearly indicate the various types of work to be in progress and show progress of the completed work at any point through the term of the Contract. The Progress Schedule shall show that each of the Stages of the Contract will be substantially completed within the times provided in the Contract Documents.

B. If the Contractor's progress is materially affected by changes in the Plans or in the amount of the Work, or, in the event, in the sole judgment of the Engineer or its representative such changes become necessary in the best interests of the project due to unforeseen circumstances, or the Contractor has failed to comply with its approved Progress Schedule, Contractor shall submit a revised Progress Schedule if requested by the Engineer, that shall show how he proposes to prosecute the balance of the Work. The Contractor shall make every effort to comply with the Progress Schedule submitted by him consistent with all Contract requirements, including the order of performance of specified portions of the Work. Payment may be withheld to the Contractor while he is delinquent in the submission of any Progress Schedule.

1.04 Temporary Suspension of Work

A. The Owner shall have the authority to suspend, delay or interrupt all or any part of the work as he may deem necessary, due to conditions that in his opinion warrant such action; or for such time as is necessary by reason of failure on the part of the Contractor to carry out orders given, or to perform in accordance with any or all provisions of the Contract. The Engineer will notify the Contractor in writing of all such suspensions, delays or interruptions.

B. The Owner reserves the right to recover any incurred damages by deducting the amount thereof out of any monies due or that may become due the Contractor, notwithstanding any liens, notices or liens or actions of subcontractors, and if said monies be insufficient to cover said damages, then the Contractor or the Surety shall promptly pay the amounts due.

1.05 Default on Contract

A. If the Contractor fails to begin the Work under the Contract within ten (10) days after the date of the Notice to Proceed, or fails to perform the Work with sufficient workmen, equipment or materials to insure completion of the Work within the specified time or times, or shall perform the Work unsuitably, as determined by the Engineer, or shall neglect or refuse to remove materials or perform anew such work as shall be rejected as defective and unsuitable, or shall discontinue the prosecution of the Work, or if the Contractor shall become insolvent to be declared bankrupt, or shall commit any act of bankruptcy or insolvency, or shall make an assignment for the benefit of creditors, or for any other cause whatsoever shall not carry on the Work in a manner approved by the Engineer, the Engineer shall give notice in writing to the Contractor and his surety of such actions or delinquency, said notice to advise of the corrective measures or action required. If the Contractor, within a period of seven (7) days after said notice, shall not proceed in accordance therewith, the Owner shall, upon written certificate from the Engineer of the fact of such delinquency or improper actions and the Contractor's failure to comply with said notice, have full power and authority to forfeit the rights of the Contractor and at its option to call upon the surety to complete the Work in accordance with the terms of the Contract, or it may take over the Work, including any or all materials and equipment within the work area as may be suitable and acceptable, and may complete the Work by entering into a new Agreement, with or without competitive bidding, for the completion of said Contract according to the terms and provisions thereof, or use such other methods as, in its opinion, shall be required for the completion of said Contract according to the terms and provisions thereof in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the Work under Contract, may be deducted from any monies due or which may become due on such Contract.

1.06 Subletting of Contract

A. Approval in writing of a subcontractor shall be construed as approval for the Contractor's subletting of that portion of the Work to be done by the subcontractor. Subcontractors must be approved by the Engineer before commencing any work. Subcontractors shall be recognized only in the capacity of employees or workmen of the Contractor and shall be subject to the same requirements as to character and competence as the Contractor. Requests for approval of subcontractors shall show the nature and percentages of the Work to be done by each subcontractor, such percentages to be computed cost of the Work to be subcontracted, based on proposed quantities of Contract work items and unit prices, in relation to the total Contract. The Contractor shall not, under any circumstances, be relieved of his full and complete liability and obligations for the entire work under the contract and the Engineer shall not be required to deal directly with subcontractors.

1.07 Limitations of Operations

A. The contractor shall contact and coordinate with the Owner for specific requirements of commercial space tenants and scheduling purposes.

B. The Contractor shall at all times conduct his work so as to minimize the interference with or inconvenience to the normal operations of the spaces not being repaired or worked within. At any time when, in the judgment of the Engineer, the Contractor has obstructed or closed an area of the Site or is carrying on operations causing greater interference or inconvenience than necessary for the proper prosecution of the Work, the Engineer may require the Contractor to finish the section of the Work which is in progress before work is started on any additional section or require the Contractor to take such further actions so as to minimize inconvenience to vehicular or pedestrian traffic or as otherwise necessary.

C. The Contractor shall arrange his work and his material so as not to interfere with the operations of other contractors engaged upon adjacent work, and to join his work to that of other in a proper manner, and in accordance with Plans and Specifications, and to coordinate the sequence of his work in relation to that of other contractors, and as may be directed by the Engineer from time to time as the Work progresses.

D. Each Contractor shall be responsible for any damage done by him or his agents to the Work performed by another Contractor.

E. The Contractor shall coordinate the available staging/storage area, superintendent's office (field office) space, etc. in the Site and the dumpster area with the Owner. The Contractor may be required to establish the space for this purpose outside the Garage. If so, he shall comply with all requirements by the Owner, City of New London and State of Connecticut.

F. The Contractor shall pay special attention to the noise level generated by the selective demolition operation. The use of jackhammers equipment shall only be allowed as indicated in the contract Special Conditions or as otherwise approved in writing by the owner. Scarifying, debris removal, shot blasting and sandblasting shall be performed only as approved by the Owner or its representative so as to not interfere with facility operations, or cause disruptive noise to nearby residential or business uses.

G. The Contractor may use the electricity (power) at existing fixtures and outlets for the completion of the work. Contractor shall provide additional power as needed for its operation if the existing is insufficient.

H. The Contractor shall furnish all temporary service connections, wiring, meters, transformers, fixtures, extensions, cords, lamps, etc., and shall remove them upon completion. All temporary light and power shall be in accordance with the local code requirements.

I. Water shall be furnished by the Owner at existing fixtures and outlets and such water availability is limited. If additional quantity is required than can be obtained from existing fixtures the Contractor shall be responsible.

J. The Contractor shall furnish all temporary service connections, pumps, hoses, metering equipment, etc., and shall pay all fees associated with temporary service connections to fire hydrants and such, if required.

K. The Contractor shall verify the adequacy (capacity) of existing drainage within the facility to remove excess water during construction and shall ensure the operation of existing drainage facilities both before construction commences and after the construction work has been completed.

1.08 Workmen, Methods and Equipment

A. The Contractor shall at all times employ sufficient labor and equipment for prosecuting the several classes of work to full completion in the manner and time required by these Specifications and the Contract.

B. All workmen shall have sufficient skill and experience to properly perform the work assigned to them. Workmen engaged in special work or skilled work shall have sufficient specialized experience in such work and in the operation of the required equipment to perform all work on time in a proper and safe manner.

C. Any person employed by the Contractor or by any subcontractor who, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the Work without the approval of the Engineer.

D. Should the Contractor fail to remove such person or persons as required above, or fail to furnish suitable skilled and sufficient personnel for the proper prosecution of the Work, the Engineer may suspend the Work by written notice until the Contractor employs proper and sufficient personnel for the Work. All equipment that is proposed to be used on the Work shall be of sufficient size and in such mechanical condition as to meet requirement of the Contract and to produce work that meets to exceed the quality of work required by the Contract. Equipment used on any portion of the project shall be such that no damage to adjacent work areas or property will result from its use.

E. The Contractor shall prosecute the Work for the number of days per week and the number of hours per day as are necessary to complete the Work by the date or dates provided in the Contract. If in the opinion of the Engineer the actual progress on the Work falls behind the estimate progress as outlined in the approved Progress Schedule submitted by the Contractor, or if it becomes apparent that the construction progress is such that the Work will not be completed within the specified time or times, the Contractor shall implement, at the direction and with the approval of the Engineer, any or all of the following at no additional cost to the Owner.

1. Provide additional equipment of the Work

2. Add necessary additional manpower

3. Increase working hours including Saturdays, Sundays, and holidays subject to any restrictions that may be set forth in the Special Conditions. When the methods and equipment to be used by the Contractor in performing the Work are not prescribed in the Contract, the Contractor is free to use any reasonable methods of equipment to perform the Work, as long as he demonstrates to the satisfaction of the Engineer that such methods or equipment will accomplish the Work in conformity with the requirements of the Contract.

F. When the Contract specifies that the construction be performed by the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the Contract, he may request authorization from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and explanation of the reasons for desiring to make the change.

G. If approval is given, it will be under the condition that the Contractor will be fully responsible for producing construction work in conformity with Contract requirements. If, after use of the substituted methods or equipment, the Engineer determines that the work produced does not meet Contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining construction with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved nor in Contract time as a result of authorizing any change in methods or equipment under these provisions.

1.09 Termination of Contract Prior to Completion

A. The performance of the Work under the Contract may be terminated in whole or, in part from time to time, whenever the Engineer shall determine that such termination is in the best interest of the Owner. In the event of termination pursuant to this Section, the Contractor shall be entitled to no damages or compensation except as hereinafter provided.

B. Termination of performance of the Work under the Contract, in whole or in part, shall be subject to the conditions herein, and it is the intent of these provisions that a settlement equitable to both the Contractor and the Owner be made in connection with a termination according to this Sub-section.

C. For all Work completed by the Contractor prior to the effective date or dates of termination, payment will be made to the Contractor for the actual number of units or items completed at the Contract unit or percentage of completion for lump sum prices. It is agreed and understood, however, that the Contractor shall, in no event, be entitled to compensation for the loss of anticipated profits, whether for completed, uncompleted work, nor shall any claims therefore by the Contractor be considered.

D. For all materials obtained by the Contractor for the Work prior to notice of termination, that have been inspected, tested and accepted by the Engineer, and that have not been incorporated in the Work and cannot be returned to the supplier, payment will be made to the Contractor for the actual costs for all such material including freight charges, as shown by original validated bills. The materials, when so paid for by the Owner, shall become the property of the Owner.

E. Termination of the performance of the Work under the Contract by the Owner, as hereinbefore specified, shall not relieve the Contractor or his surety of the responsibility for the Work performed as required by the Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 013100

SECTION 013200

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 Related Documents

Drawings and general provisions of contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 General Requirements

A. Actual quantities of work completed under the Contract must be reviewed by the Engineer prior to payment. Measurement will be in accordance with United States standards and in compliance with recognized engineering practices. All packaged materials shall be marked plainly, showing the amount and nature of contents and shall be delivered intact.

1.03 Scope of Payment

A. The Contractor agrees to and shall receive and accept the compensation as herein provided, as payment in full for the Work, including but not limited to, furnishing all materials, transportation, labor, tools, and equipment; for performing all work contemplated and embraced under the Contract; for all loss or damage arising out of the nature of the Work or from the action of the elements; for any unforeseen difficulties, obstructions or interferences that may arise or be encountered during the prosecution of the Work until its final acceptance by the Owner as determined by the specifications.

B. In cases where the "Payment" clause in the Specifications related to any unit price cover and be considered compensation for certain work or material essential to the item, the same work or material shall not also be measured or paid for under any other pay item that may appear elsewhere in the Specifications.

C. The partial payment of any portion of the Work certified by the Engineer shall in no way constitute an acknowledgment of the acceptance of the Work, nor in any way prejudice or affect the obligation of the Contractor to repair, correct, renew, or replace at his expense any defects or imperfections in the construction or in the strength or quality of the materials used in or about the construction of the Work under Contract and its appurtenances, nor any damage due to attributable to such defects, which defects, imperfections or damage should have been covered before or after payment for and acceptance of the Work.

D. **No payment shall be made for stored materials or equipment. Payment shall be made only for materials and equipment in-place and accepted by Owner, less applicable retainage.**

1.04 Payment for Extra Work: Reference General Conditions

1.05 Canceled Items

A. It shall be in the sole judgment and sole discretion of the Owner or its representatives to cancel or alter any or all portions of the Contract. Should such actions result in elimination or non-completion of any portion of the Contract, payment shall be made commensurate with the work performed.

B. For the canceled work completed by the Contractor, payment shall be made to the Contractor for the actual number of units or items completed at the Contract unit or percentage of completion for lump sum prices.

C. For materials obtained by the Contractor for the unfinished (uncompleted) portions of the canceled work, that have been inspected, tested and accepted by the Engineer, and that have not been incorporated in the canceled work, payment shall be made to the Contractor for the actual costs for all such materials, including freight charges, as shown by the original paid invoices. The materials, when so paid for by the Owner, shall become the property of the Owner.

1.06 Acceptance and Final Payment

A. When the repairs and preventive maintenance measures provided for by the Contract shall have been completely performed by the Contractor according to the Contract and all parts of the Work have been approved and accepted by the Engineer, the final pay request will be prepared by the Contractor and submitted to the Engineer for approval. Along with the final pay request the Contractor must also submit the following:

1. All guarantees and warranties from General Contractor, Sub-contractors and Manufacturers

2. Final Waiver of Lien from Contractors and Sub-contractors

3. Complete mark up set of drawings and project manual showing amount and location of all work performed

4. Approved maintenance and operation manuals for all components incorporated into the Work. Manuals shall include spare parts listing, model numbers, serial numbers, manufacturer's addresses and telephone numbers

5. Contractor's Release and Hold Harmless Agreement

6. Final reports and other information required in the General and Supplementary Conditions; final daily logs; consent of surety to final payment and release of retainage (also see Section 01700)

B. The Engineer will review all submittals, perform necessary measurements and computations and give final recommendation to Owner.

C. The amount of this final estimate, less any sums deductible or retained under the provisions of the Contract, will be paid to the Contractor as soon as practicable after the final acceptance, provided the Contractor has furnished to the Engineer satisfactory evidence that all sums of money due for any labor, materials, apparatus, fixtures or machinery furnished for the purpose of such improvements have been paid, or that the person or persons to whom the same may be due have consented to such final payment.

D. The Engineer shall determine the amount or quantity of all kinds of work herein contracted to be done and decide every question that can or may arise regarding to the execution and performance of this Contract on the part of said Contractor.

E. The acceptance by the Contractor of the final payment shall constitute a release and waiver of any and all rights and privileges under the terms of the Contract; further, the acceptance by the Contractor of final payment shall relieve the Owner from any and all claims or liabilities for anything done or furnished relative to the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 013200

SECTION 013800

CONSTRUCTION PHOTOGRAPHS

PART 1 - GENERAL

1.01 Related Documents

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division I Specification Sections, apply to this Section.

1.02 Summary

A. This Section includes administrative and procedural requirements for construction photographs.

B. Related Sections: The following Section contains requirements that relate to construction photographs:

1. Division I, Section 01300 "Submittals" specifies general requirements for submitting construction photographs.

1.03 Submittals

A. Photographs: Note on each photograph taken the date the picture was taken and the project number. Deliver one (1) set each to the Owner, the Property Manager, and to the Architect/Engineer. Hard copies (prints) of all photographs shall be submitted along with electronic (digital) images in common computer readable and editable format (jpeg) for later reuse by both the Client and Engineer.

B. Extra Sets of Photographs: When requested by the Owner**,** the photographer shall prepare extra sets of photos. The photographer shall distribute these photos directly to designated parties.

PART 2 - PRODUCTS

2.01 Photographic Copies

A. On the date the work is begun and every 7 calendar days thereafter (until the work is at least 95 percent complete), the Contractor shall have photos of the construction taken.

B. Identification: Label each photo on the front in the bottom margin with project name and date the photo was taken. With each slide submittal provide an applied label, rubber-stamped or index sheet with the following information:

1. Name of the Project
2. Name of the Architect
3. Name of the Contractor
4. Date the photograph was taken
5. Vantage Point: Description of vantage point, in terms of location, direction (by compass point), and elevation or story of construction

PART 3 - EXECUTION

3.01 Preconstruction Photographs

A. Before starting construction, take photos of the site and surrounding properties from different points of view.

1. Take photos in sufficient number to show existing site conditions before starting Work.

2. Take photos of existing buildings either on or adjoining the property in sufficient detail to record accurately the physical conditions at the start of construction.

3.02 Photographic Requirements

A. Take photos monthly, coinciding with the cutoff date associated with each Application for Payment. Vantage points for each shot shall be chosen to best show the status of construction and progress since the last photos were taken.

B. Photographs shall be provided in electronic format, and accompanying colored hard-copy prints of acceptable quality, presented in an organized binder. Photos of poor-quality (i.e. blurry, not of presentable quality or representative of the work, as determined by the Owner/Engineer) shall be rejected and new photos shall be expected to be submitted.

END OF SECTION 013800

SECTION 014000

QUALITY CONTROL SERVICES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements for quality control services.

B. Quality control services include inspections and tests and related actions including reports, performed by independent agencies, governing authorities, and the Contractor. They do not include contract enforcement activities performed by the Consultant.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.

2. Inspections, test and related actions specified are not intended to limit the Contractor's quality control procedures that facilitate compliance with Contract Document requirements.

3. Requirements for the Contractor to provide quality control services required by the Consultant, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.03 RESPONSIBILITIES

A. Contractor Responsibilities: The Contractor shall provide inspections, tests and similar quality control services, specified in individual Specification Sections and required by governing authorities, except where they are specifically indicated to be the Owner's responsibility, or are provided by another identified entity; these services include those specified to be performed by an independent agency and not by the Contractor. Costs for these services shall be included in the Contract Sum.

1. The Contractor shall employ and pay an independent agency, to perform specified quality control services.

2. The Owner will engage and pay for the services of an independent agency to perform inspections and tests specified as the Owner's responsibilities.

a. Where the Owner has engaged a testing agency or other entity for testing and inspection of a part of the Work, and if the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Owner, unless otherwise agreed in writing with the Owner.

3. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor's responsibility.

a. Cost of retesting construction revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original construction.

4. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:

a. Providing access to the Work and furnishing labor and facilities necessary to facilitate inspections and tests

b. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples

c. Providing facilities for storage and curing of test samples, and delivery of samples to testing laboratories

d. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency

e. Security and protection of samples and test equipment at the Project site

B. Owner Responsibilities: The Owner will provide inspections, tests and similar quality control services specified to be performed by independent agencies and not by the Contractor, except where they are specifically indicated as the Contractor's responsibility or are provided by another identified entity.

1. The Owner will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which are the Owner's responsibility from the allowance set aside for testing in the contract sum.

C. Duties of the Testing Agency: The independent testing agency engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections shall cooperate with the Consultant and Contractor in performance of its duties, and shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Consultant and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. The agency is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.

3. The agency shall not perform any duties of the Contractor.

D. Coordination: The Contractor and each agency engaged to perform inspections, tests and similar services shall coordinate the sequence of activities to accommodate required services with a minimum of delay. In addition the Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.04 SUBMITTALS:

A. The independent testing agency shall submit a certified written report of each inspection, test or similar service, to the Consultant, in duplicate, unless the Contractor is responsible for the service. If the Contractor is responsible for the service, submit a certified written report of each inspection, test or similar service through the Contractor, in duplicate.

1. Submit additional copies of each written report directly to the governing authority, when the authority so directs

2. Report Data: Written reports of each inspection/test or similar service shall include, but not be limited to:

a. Date of issue
b. Project title and number
c. Name, address and telephone number of testing agency
d. Dates and locations of samples and tests or inspections
e. Names of individuals making the inspection or test
f. Designation of the Work and test method
g. Identification of product and Specification Section
h. Complete inspection or test data
i. Test results and interpretations of test results
j. Ambient conditions at the time of sample taking and testing
k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements
l. Name and signature of laboratory inspector
m. Recommendations on retesting

1.05 QUALITY ASSURANCE

A. Qualification for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories that are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and that specialize in the types of inspections and tests to be performed.

1. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the State in which the Project is located.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes. Comply with Contract Document requirements for "Cutting and Patching."

B. Protect construction exposed by or for quality control service activities, and protect repaired construction.

C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 014000

SECTION 015000

TEMPORARY FACILITIES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

B. Reference Phasing Plan and Narrative for additional and prioritized requirements. This specification is not intended to replace the requirements noted in the Phasing Plan and Narrative, but rather to supplement them. When a discrepancy is noted, the more strict requirement shall be adhered to.

1.02 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

B. Temporary utilities required include but are not limited to:

1. Water service and distribution
2. Temporary electric power and light
3. Telephone service

C. Temporary construction and support facilities required include but are not limited to:

1. Temporary heat
2. Field offices and storage sheds
3. Sanitary facilities, including drinking water
4. Temporary enclosures
5. Temporary Project identification signs and bulletin boards
6. Waste disposal services
7. Rodent and pest control
8. Construction aids and miscellaneous services and facilities

D. Security and protection facilities required include but are not limited to:

1. Temporary fire protection
2. Barricades, warning signs, lights
3. Sidewalk bridge or enclosure fence for the site
4. Environmental protection

1.03 SUBMITTALS

A. Temporary Utilities: Submit reports of tests, inspections, meter readings and similar procedures performed on temporary utilities.

B. Implementation and Termination Schedule: Submit a schedule indicating implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work.

1.04 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:

1. Building Code requirements
2. Health and safety regulations
3. Utility company regulations
4. Police, Fire Department and Rescue Squad rules
5. Environmental protection regulations

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition", and NECA Electrical Design Library "Temporary Electrical Facilities."

1. Refer to "Guidelines for Bid Conditions for Temporary Job Utilities and Services", prepared jointly by AGC and ASC, for industry recommendations.

2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.05 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

B. Lumber and Plywood:

1. For job-built temporary offices, shops and sheds within the construction area, provide UL labeled, fire treated lumber and plywood for framing, sheathing and siding.

2. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.

3. For fences and vision barriers, provide exterior type, minimum 3/8" thick plywood.

4. For safety barriers, sidewalk bridges and similar uses provide minimum 5/8" thick exterior plywood.

C. Paint: Comply with requirements of Division-9 Section "Painting."

1. For job-built temporary offices, shops, sheds, fences and other exposed lumber and plywood, provide exterior grade acrylic-latex emulsion over exterior primer.

2. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.

3. For interior walls of temporary offices, provide two coats interior latex flat wall paint.

D. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

E. Water: Provide potable water approved by local health authorities.

F. Open-Mesh Fencing: Provide 11-gage, galvanized 2-inch, chain link fabric fencing 6-feet high with galvanized barbed wire top strand and galvanized steel pipe posts, 1-1/2" I.D. for line posts and 2-1/2" I.D. for corner posts.

2.02 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Consultant, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide 3/4" heavy-duty, abrasion-resistant, flexible rubber hoses 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air-conditioned units on foundations adequate for normal loading.

H. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.

I. First Aid Supplies: Comply with governing regulations.

J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "A" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed, or are replaced by authorized use of completed permanent facilities.

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.

1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.

2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.

3. Obtain easements to bring temporary utilities to the site, where the Owner's easements cannot be used for that purpose.

4. Use Charges: Cost or use charges for temporary facilities are not chargeable to the Owner or Consultant, and will not be accepted as a basis of claims for a Change Order.

B. Temporary Water Service: The contractor shall make arrangements with the Building Management for temporary water from existing sources at the facility. The Contractor shall be responsible for all hoses, connections, etc., required from the point of water source at the facility.

C. Temporary Electric Power Service: The Contractor shall make all arrangements for and shall install and pay for the temporary electric service. The Contractor shall furnish, install and maintain all temporary and power facilities required by the work. Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear.

1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be non-metallic sheathed cable where overhead and exposed for surveillance.

D. Temporary Lighting:

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Temporary Telephones: Provide temporary telephone service for all personnel engaged in construction activities, throughout the construction period. Install telephone on a separate line for each temporary office and first aid station. Where an office has more than two occupants, install a telephone for each additional occupant or pair of occupants.

1. At each telephone, post a list of important telephone numbers.

F. Sewers and Drainage: If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds and similar facilities. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off the site in a lawful manner.

1. Filter out excessive amounts of soil, construction debris, chemicals, oils and similar contaminants that might clog sewers or pollute waterways before discharge.

2. Connect temporary sewers to the municipal system as directed by the sewer department officials.

3. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. Following heavy use, restore normal conditions promptly.

G. Provide earthen embankments and similar barriers in and around excavations and sub-grade construction, sufficient to prevent flooding by runoff of storm water from heavy rains.

3.03 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access at locations approved by the Owner.

1. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. Temporary Heat: Provide temporary heat required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

D. Heating Facilities: Except where use of the permanent system is authorized, provide vented self-contained LP gas or fuel oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open flame, or salamander type heating units is prohibited.

E. Field Offices: Provide insulated, weather-tight temporary offices of sufficient size to accommodate required office personnel at the Project site. Keep the office clean and orderly for use for small progress meetings. Furnish and equip offices as follows:

1. Furnish with a desk and chairs, a 4-drawer file cabinet, plan table and plan rack and a 6-shelf bookcase, as required by the Owner

F. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on the site as approved by the Owner.

G. Sanitary facilities include temporary toilets, wash facilities and drinking water fixtures. Comply with regulations and health codes for the type, number, location, operation and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

1. Provide toilet tissue, paper towels, paper cups and similar disposable materials for each facility. Provide covered waste containers for used material.

H. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.

I. Drinking Water Facilities: Within temporary office, provide containerized tap-dispenser bottled-water type drinking water units, including paper supply.

J. Temporary Enclosures: Provide temporary enclosure for protection of construction in progress and completed, from exposure, foul weather, other construction operations and similar activities.

1. Where heat is needed and the permanent building enclosure is not complete, provide temporary enclosures where there is no other provision for containment of heat. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

2. Install tarpaulins securely, with incombustible wood framing and other materials. Close openings of 25 square feet or less with plywood or similar materials.

3. Where temporary wood or plywood enclosure exceeds 100 square feet in area, use UL-labeled fire-retardant treated material for framing and main sheathing.

4. All temporary partitions shall be designed to attenuate noise on all sides of the garage and to prevent unauthorized access into the work area. The contractor shall pay special attention to the noise levels generated by the concrete removal operations and shotblasting/blast tracking of the deck prior to applicable work; obey all applicable noise laws. The contractor shall also use noise dampening/sound absorbing insulation in perimeter partitions to abate noise in the immediate vicinity and to nearby residential apartments, businesses, schools, medical buildings, theaters, and hotels. The partitions shall protect other areas within the facility from water, dust and flying debris. The contractor shall provide a dust collection/filter system to prevent dust and debris from escaping in the work area ventilation exhaust. All drainage systems shall be protected from damage and shall be maintained in functioning order.

K. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

3.04 PROTECTION FACILITIES INSTALLATION

A. Temporary Fire Protection:

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell

2. Store combustible materials in containers in fire-safe locations

3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas

4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition

B. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

C. Security Enclosure and Lockup:

1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

D. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment that produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.05 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.

2. Protection: Prevent water filled piping from freezing.

C. Termination and Removal: Unless the Owner requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of the Contractor.

2. Where the area is intended for landscape development remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs and sidewalks at the temporary entrances, as required by the governing authority.

3. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:

a. Replace air filters and clean inside of ductwork and housings

b. Replace significantly worn parts and parts that have been subject to unusual operating conditions

END OF SECTION 015000

SECTION 016000

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. All Contract Documents shall apply to work of this Section.

1.02 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals."

C. Standards: Refer to Section "Reference Standards and Definitions" for applicability of industry standards to products specified.

D. Administrative procedures for handling requests for substitutions made after award of the Contract are included under Section "Product Substitutions."

1.03 DEFINITIONS

A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

a. "Named Products" are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.

2. "Materials" are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.04 SUBMITTALS

A. Product List Schedule: Prepare a schedule showing products specified in a tabular form acceptable to the Consulting Engineer. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.

1. Coordinate the product list schedule with the Contractor's Construction Schedule and the Schedule of Submittals.

2. Form: Prepare the product listing schedule with information on each item tabulated under the following column headings:

a. Related Specification Section number
b. Generic name used in Contract Documents
c. Proprietary name, model number and similar designations
d. Manufacturer's name and address
e. Supplier's name and address
f. Installer's name and address
g. Projected delivery date, or time span of delivery period

3. Initial Submittal: Within seven days after date of commencement of the Work, submit three copies of an initial product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract requirements.

a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.

4. Completed Schedule: Within 15 days after date of commencement of the Work, submit three copies of the completed product list schedule. Provide a written explanation for omissions of data, and for known variations from Contract Documents.

5. Engineer's Action: The Engineer will respond in writing to the Contractor within one (1) week of receipt of the completed product list schedule. No response within this time period constitutes there is no objection to listed manufacturers or products, but does not constitute a waiver of the requirement that products comply with Contract Documents. The Engineer's response will include the following:

    a. A list of unacceptable product selections, containing a brief explanation of reasons for this action

1.05 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.

1. When specified products are available only from sources that do not or cannot produce a quantity adequate to complete project requirements in a timely manner, consult with the Engineer for a determination of the most important product qualities before proceeding. Qualities may include attributes relating to visual appearance, strength, durability, or compatibility. When a determination has been made, select products from sources that produce products that possess these qualities, to the fullest extent possible.

B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project; the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.06 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.

4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.

5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

7. Store products subject to damage by the elements above ground, under cover in a weather-tight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

8. Progress payments will be made for work complete and in place only. No payment will be made for stored materials.

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents that are undamaged and, unless otherwise indicated, unused at the time of installation.

1. Provide products complete with all accessories, trim, finishes, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated or Approved Equal.

2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.

    a. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

3. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

4. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

5. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

    a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

6. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the codes, standards, and regulations specified.

7. Visual Matching: Where Specifications require matching an established Sample, the Engineer's decision will be final on whether a proposed product matches satisfactorily.

a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning "substitutions" for selection of a matching product in another product category, or for noncompliance with specified requirements.

8. Visual Selection: Where specified product requirements include the phrase " . . . as selected from manufacturer's standard colors, patterns, textures . . . " or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Consulting Engineer will select the color, pattern and texture from the product line selected.

9. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division-1 for allowances that control product selection, and for procedures required for processing such selections.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

3.02 SYSTEMS DEMONSTRATION

A. Prior to final inspection, the Contractor shall demonstrate the operation of each system to Architect/Engineer or Owner.

B. The Contractor shall instruct the Owner’s personnel in operation, adjustment, and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

END OF SECTION 016000

SECTION 016310

PRODUCT SUBSTITUTIONS

PART 1 - GENERAL

1.01 Related Documents

A. All Contract Documents shall apply to work of this section.

1.02 Summary

A. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award to the Contract.

B. The Contractor's Construction Schedule and the Schedule of Submittals are included under Section "Submittals".

C. Standards: Refer to Section “Reference Standards and Definitions” applicability of industry standards to products specified.

D. Procedural requirements governing the Contractor’s selection of products and product options are included under section “Materials and Equipment”.

1.03 Definitions

A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are not considered substitutions:

1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions

2. Revisions to Contract Documents requested by the Owner or Architect

3. Specified options of products and construction methods included in Contract Documents

4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities

1.04 Submittals

A. Substitution Request Submittal: Requests for substitution will be considered if they are received within 60 days after the commencement of work. Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Engineer/Architect.

1. Submit a minimum of 4 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.

2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

a. Project data, including drawings and descriptions of products, fabrication and installation procedures

b. Samples, where applicable or requested

c. A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.

d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.

e. A statement indicating the substitution and its effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

f. Cost information, including a proposal of the net change, if any in the Contract Sum.

g. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

3. Engineer's Action: Within one week of receipt of the request for substitution, the Engineer will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Engineer will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name. Acceptance will be in the form of a written response or Change Order if there is an impact on project cost.

PART 2 - PRODUCTS

2.01 Substitutions

A. Conditions: The Contractor's substitution request will be received and considered by the Engineer when one or more of the following conditions are satisfied, as determined by the Engineer; otherwise requests will be returned without action except to record noncompliance with these requirements.

1. Extensive revisions to Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of Contract Documents.

3. The request is timely, fully documented and properly submitted.

4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.

8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.

9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

B. The Contractor's submittal and Engineer's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 016310

SECTION 017000

PROJECT CLOSEOUT

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Inspection procedures
2. Project record document submittal
3. Operating and maintenance manual submittal
4. Submittal of warranties
5. Final cleaning

B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 9.

1.03 SUBSTANTIAL COMPLETION:

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

2. Advise Owner of pending insurance changeover requirements.

3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

4. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.

5. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.

6. Deliver tools, spare parts, extra stock, and similar items.

7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.

8. Complete start-up testing of systems, and instruction of the Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.

9. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspection Procedures: On receipt of a request for inspection, the Consultant will either proceed with inspection or advise the Contractor of unfilled requirements. The Consultant will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Consultant will repeat inspection when requested and assured that the Work has been substantially completed.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 FINAL ACCEPTANCE:

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the Consultant's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Consultant.

4. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of the date of Substantial Completion, or when the Owner took possession of and responsibility for corresponding elements of the Work.

5 Submit consent of surety to final payment.

6. Submit a final liquidated damages settlement statement.

7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Re-inspection Procedure: The Consultant will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Consultant.

1. Upon completion of re-inspection, the Consultant will prepare a certificate of final acceptance, or inform the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, re-inspection will be repeated.

1.05 RECORD DOCUMENT SUBMITTALS:

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Consultant's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.

2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.

3. Note related Change Order numbers where applicable.

4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

1. Upon completion of the Work, submit record Specifications to the Consultant for the Owner's records.

D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from the manufacturer's installation instructions and recommendations. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation. Note related Change Orders and mark-up of record drawings and Specifications.

1. Upon completion of mark-up, submit complete set of record Product Data to the Consultant for the Owner's records.

E. Record Sample Submitted: Immediately prior to the date or dates of Substantial Completion, the Contractor will meet at the site with the Consultant and the Owner's personnel to determine which of the submitted Samples that have been maintained during progress of the Work are to be transmitted to the Owner for record purposes. Comply with delivery to the Owner's Sample storage area.

F. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Consultant for the Owner's records.

G. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data into individual heavy-duty 2-inch, 3-ring vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions
2. Spare parts list
3. Copies of warranties
4. Wiring diagrams
5. Recommended "turn around" cycles
6. Inspection procedures
7. Shop Drawings and Product Data
8. Fixture lamping schedule

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CLOSEOUT PROCEDURES:

A. Operating and Maintenance Instructions: Arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Maintenance manuals
2. Record documents
3. Spare parts and materials
4. Tools
5. Lubricants
6. Fuels
7. Identification systems
8. Control sequences
9. Hazards
10. Cleaning
11. Warranties and bonds
12. Maintenance agreements and similar continuing commitments

B. As part of instruction for operating equipment, demonstrate the following procedures:

1. Start-up
2. Shutdown
3. Emergency operations
4. Noise and vibration adjustments
5. Safety procedures
6. Economy and efficiency adjustments
7. Effective energy utilization

3.02 FINAL CLEANING:

A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities".

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.

1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

a. Remove labels that are not permanent labels.

b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

d. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.

e. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

END OF SECTION 017000

SECTION 017400

WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY:

A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

1. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials.

2. General closeout requirements are included in Section "Project Closeout."

3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions 2 through 16.

4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.03 DEFINITIONS

A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.04 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or re-building; reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.05 SUBMITTALS

A. Submit written warranties to the Consultant prior to the date certified for Substantial Completion. If the Consultant's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Consultant.

1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Consultant within fifteen days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Consultant for approval prior to final execution.

C. Forms for special warranties are included at the end of this Section. Prepare a written document utilizing the appropriate form, ready for execution by the Contractor, or the Contractor and subcontractor, supplier or manufacturer. Submit a draft to the Owner through the Consultant for approval prior to final execution.

1. Refer to individual Sections of Divisions 2 through 9 for specific content requirements, and particular requirements for submittal of special warranties.

D. Form of Submittal: At Final Completion compile two copies of each required warranty and bond properly executed by the Contractor, or by the subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

E. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer

.

2. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS," the Project title or name, and the name of the Contractor.

3. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 SCHEDULE OF WARRANTIES

A. Schedule: Provide warranties on products and installations as specified, but not limited to, below:

1. The Contractor (and applicable sub-contractors) shall provide a 5-year warranty (minimum) for all work performed to conform to the specifications in addition to specific warranties for individual products

END OF SECTION 017400

SECTION 022200

SITE PREPARATION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The general provisions of the Contract including General and Supplementary Conditions, and General Requirements apply to the work specified in this Section.

1.2 SECTION INCLUDES

A. Work Included: Providing all Site Preparation as shown on the Drawings, and as specified, including, but not necessarily limited to the following:

1. Review of existing conditions and subsurface data.
2. Provide and install safety barriers, construction fencing and temporary signage as necessary and as directed by the Owner and Engineer.

1.3 EXISTING CONDITIONS - It shall be the obligation of each bidder to satisfy himself by examination of the site that the existing conditions, existing elevation grades, and existing improvements shown are accurate. No claim for extra compensation for inaccuracies of existing conditions will be allowed.

1.4 ADDITIONAL INFORMATION - Upon award of contract, the Contractor may make their own subsurface and site investigations to substantiate existing subsurface soil conditions, as approved and reviewed by the Owner and Engineer.

1.5 JOB CONDITIONS

A. Contact Call-Before-You-Dig services for Connecticut (1.800.922.4455) to locate underground utilities prior to commencing site preparation operations.

B. The Contractor shall perform all work necessary to provide for maintenance and protection of vehicular traffic and pedestrian through traffic along sidewalks during the entire construction period. The Contractor shall coordinate work with the Engineer and the Owner in this regard.

C. No areas under construction shall be left accessible to pedestrians at any time. The Contractor shall take all necessary steps, as requested or approved by the Engineer, to secure the site. When making water, sewer drainage or any other utility connections, the Contractor is responsible for securing work areas that occur outside of the proposed construction fence line for the entire time construction is taking place.

D. For construction access to the site, the Contractor shall use entrances as approved by the Owner for access and egress to the site. All damage to pavement, grounds and trees to remain caused by vehicular access to the site shall be repaired at the Contractor's expense to the satisfaction of the Engineer and the Owner.

E. The Contractor is responsible for protecting survey monuments, benchmarks and property boundary pins within the contract limits shown. The Contractor shall locate, maintain, raise, lower, or remove and replace to suit the new field conditions or if damaged by Contractor's operations. State of Connecticut requirements and specifications for monument location and installation must be followed.

F. Peripheral areas outside of the limit of work line shall not be disturbed or used for storing or stockpiling materials without the prior written approval of the Owner.

G. Stockpile Areas shall be as shown on the Plans and as approved by the Engineer prior to placement of material stockpiles. Stockpiles shall be maintained in accordance with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNAGE

A. All safety signs and barricades shall conform to standards specified in the “Manual on Uniform Traffic Control Devices” unless otherwise noted.

2.2 CONSTRUCTION FENCE

A. Chain-Link Fencing: Minimum two (2) inch, 0.148 inch thick, galvanized steel, chain-link fabric fencing; minimum six (6) feet high with galvanized steel pipe posts; minimum 2-3/8 inch OD line posts and 2-7/8 inch OD corner and pull posts, with 1-5/8 inch OD top rails.

B. Posts may be pedestal or post mounted as required by field conditions or as ordered by the Engineer.

PART 3 EXECUTION

3.1 CONSTRUCTION FENCE

A. Review all limits of construction fencing and barriers with the Engineer and Owner prior to installation. No work shall commence until all construction fencing is in place. Fencing shall be provided and maintained as necessary and as directed by the Engineer and/or Owner throughout the duration of the Contract.

B. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.

C. Remove fencing upon completion of the Contract, or as directed.

D. Additional Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.

1. For safety barriers, sidewalk bridges, and similar uses, provide minimum 5/8-inch thick exterior plywood.

3.2 PROTECTION AND MAINTENANCE OF TRAFFIC

A. Supply, install, relocate and maintain signs and other approved devices for warning, controlling, routing, directing and detouring traffic as directed by the Engineer and in accordance with the "Manual on Uniform Traffic Control Devices."

B. Provide access for emergency vehicles at all times.

3.3 DISPOSAL

A. Confirm with Engineer items that are to be salvaged. All demolished, excavated and removed materials not scheduled to be salvaged by the Owner for re-use on site or for future projects shall be removed and disposed of off-site legally and promptly.

B. All waste material shall be disposed of legally off site.

C. No Burning or burying of tree stumps on-site will be allowed.

END OF SECTION 022200

SECTION 024113

PAVEMENT PULVERIZATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division 1 General Requirements and Specific Requirements, apply to this Section.

B. "Form 816" shall mean the State of Connecticut, Department of Transportation (CT DOT) Standard Specifications for Roads, Bridges and Incidental Construction, Form 816 or its latest edition and any supplemental specifications.

C. "Standard specifications for highway materials and methods of sampling and testing, American Association of State Highway and Transportation Officials (AASHTO)."

1.2 DESCRIPTION

A. The Contractor shall provide all labor, materials, equipment, and services necessary for and incidental to pulverize the existing pavement together with the existing base material, shaping and compacting as specified herein.

1.3 SUBMITTALS

A. Materials Certificates

1. The Contractor shall provide copies of material certificates signed by the supplier and the Contractor certifying that each material complies with or exceeds the specified requirements. All materials shall be from a CT DOT approved source(s).

B. Sieve Analysis

1. The Contractor shall provide a separate physical property analysis of the pulverized and blended material to ensure that the material meets the specified gradation. One sample shall be provided for approximately every 25 cubic yards of pulverized and blended material each.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Pulverization shall be accomplished with a machine having positive depth control adjustments and capable of reducing the pavement material to the specified size. The pulverizing equipment shall meet the approval of the Engineer.

B. The mixer for the blending operation shall be a self-propelled mixer. The mixing rotor or rotors shall have a positive depth control to insure a uniform depth of mixing. The mixer shall meet the approval of the Engineer.

2.2 MATERIALS

A. The pulverized material shall consist of the existing pavement blended with 3-4" of underlying base material such that 100% of material will pass a 1" sieve. Gradation of final material to be similar to No. 6 sieve, section M.01, CT DOT Form 816.

PART 3 - EXECUTION

3.1 GENERAL

A. Pulverization shall be performed at the locations and in accordance with the details indicated on the plans.

B. The material shall be mixed with an approved power driven rotary type mixing machine. Mixing shall continue until the material is of uniform composition. Mixing by blading, shoveling, and/or scooping will not be permitted.

C. Shaping and compacting shall be completed to the lines and grades indicated on the plans. The in-place material shall be thoroughly compacted with a combination of a self-propelled vibratory compactor, steel wheel compactors, and/or pneumatic type compactors in accordance with CT DOT specifications.

3.2 CALCIUM CHLORIDE (If Required)

A. Calcium chloride stabilization additive shall be added to the base course by an approved mechanical distributor at a rate of 0.5 pounds per square yard per inch of base course to be stabilized. As an option, the calcium chloride may be added as a water soluble solution at a rate of 0.75 gallons per square yard, or as directed by the Engineer.

B. The chemical additive shall be thoroughly and uniformly incorporated with the blended material by mixing with an approved power driven rotary type mixing machine. Mixing

should continue until the material is of uniform composition. Mixing by blading, shoveling, and/or scooping will not be permitted.

C. Shaping and compacting shall be completed to the lines and grades indicated on the plans immediately after application of the calcium chloride.

END OF SECTION 024113

SECTION 055210

SIEEL HANDRAILS AND GUARDRAILS

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Provide all materials, labor, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified and as required by job conditions including, but not limited to, the following:

1) Site handrails.

2) Site guardrails.

1.2 RELATED SECTIONS

A. Section 32 13 13 – Site Concrete.

1.3 APPLICABILITY

A. Any ramp which has a rise greater than 6 in. (150 mm) or a horizontal projection of greater than 72 in (1830 mm) shall have a handrail on both sides. All handrails shall comply with section 4.8.5 of the Americans with Disabilities Act (ADA).

B. Any walkway with a drop off of 30 inches or more shall have a guardrail with balusters such that a 4 inch maximum diameter sphere cannot pass through, and an ADA compliant handrail attached at a height of 34 to 38 inches from the operating surface.

1.4 STANDARDS

A. Railings shall conform to apply to pertinent sections of the following codes:

1. ADA (Americans with Disabilities Act Accessibility Guidelines)

2. State of Connecticut State Building Code, latest addition and amendments

B. Load - Railings shall be designed and installed to withstand a concentrated load of 200 lbs. applied anywhere on or throughout the system.

C. Handrail shall provide a smooth and continuous gripping surface throughout the entire length of the ramp.

1. A minimum clearance of 1 1/2” shall be maintained between the handrail and any obstructions above or behind the handrail.

2. End returns are to be supplied at all landings extending 12” horizontally past the end of the ramp or stairway.

3. A minimum of 36” shall be maintained between handrails to provide clear access for users.

4 Handrail system shall consist of one top rail 34” - 38” above the operating surface. For stairways, the height of the railing shall be measured from the tread nose. An intermediate railing positioned mid way between the top rail and operating surface shall be provided when indicated on the plans..

5. The slope of the handrail for a ramp shall follow the slope of the map and shall not exceed a 1” rise over a 12” run. For stairways, the slope of the handrail shall follow the slope of the stairs.

1.5 SUBMITTALS

A. Product Data - Supply all related technical data on the handrail system including catalogs, material compliance sheets, and material safety data sheets.

B. Product Testing - submit complete results of product tests or structural calculations which show that the product meets all performance requirements. All test results or calculations must certified by a Professional Engineer.

C. Samples - Supply a railing sample complete with top and mid-rails, multiple posts, as well as base mounting system if required by project drawings.

D. Shop Drawings – prior to fabrication of the handrail, shop drawings shall be submitted which include the following: plans showing location of handrail required for the project with all necessary dimensions, and detail drawings which show standard handrail elevations, typical railing connections, anchoring systems and expansion joints.

1.6 PRODUCT HANDLING

A. Handling: Do not handle coated steel until coating has thoroughly cured. Care shall be exercised to avoid abrasions and other damage.

B. Storage: Stack material out of mud and dirt and provide for proper drainage. Protect steel from damage or soiling by adjacent construction operations. Protect from corrosion steel that would be detrimental to subsequent fireproofing or coating systems.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Steel Pipe: ASTM A-53, Type E or S, Grade A, suitable for close coiling, black or ASTM A-53 black standard weight for straight sections. Unless otherwise shown, provide 1-1/2" o.d. standard weight, carbon steel pipe. Provide other pipe sizes and at locations shown on drawings or as needed for load conditions. Hot dip galvanize exterior assembly after fabrication to G-90 standards.

B. Wall brackets: shall be ductile iron castings conforming to ASTM A-536, alloy 65-45-12 as recommended by the manufacturer for wall brackets hot dip galvanized for exterior use.

C. Bolts and nuts:

1) General purpose: ASTM 307, Grade A galvanized steel.

2) Expansion anchors, drill-in sleeve anchors for masonry FF-S-325, Group II, Type 3, Class 3 and/or drill-in wedge anchors for concrete FF-S-325, Group II, Type 4, Class 1.

D. Epoxy grout: fast setting, non-staining, non-ferrous, expansive concrete cement or epoxy grout. Submit manufacturer's data for approval.

PART 3 – EXECUTION

3.1 HANDRAIL / GUARDRAIL INSTALLATION

A. Assembly of ground mounted handrails / guardrails:

1) Construction: It is intended that pipe handrails / guardrails form a continuous one-piece unit. The top rails shall be without interruptions. Rails shall be designed to resist the simultaneous application of a 200 pounds per lineal foot lateral load and a vertical load both applied to either the top and / or intermediate rails. Intermediate rails and posts shall be carefully fitted. Butt railing splices shall be reinforced by a tight-fitting interior sleeve not less than 6" long.

a) Bends: Railings may be bent at corners instead of joining, provided the bends are uniformly formed in jigs, with circular cross-section of pipe maintained throughout the entire bends.

b) Posts in Concrete: Anchor posts in concrete by means of non-ferrous pipe sleeves set and anchored into the concrete or by core-drilling into concrete. Provide sleeves of galvanized steel black painted pipe, not less than 6" long, and having an inside diameter not less than 1/2" greater than the outside diameter of the inserted pipe post. Provide plate closure secured to the bottom of the sleeve and of the width and length not less than 1" greater than the outside diameter of the sleeve. After the posts have

been inserted into the sleeves, fill annular space between post and sleeve solid with molten lead or non-shrink grout. Cover anchorage joint with a round flange.

B. Assembly of wall-mounted handrails / guardrails: design criteria shall meet floor mounted rail standards.

1) Wall brackets: Secure handrails to walls by means of wall brackets, and wall return fittings at handrail ends. Provide brackets of aluminum castings or cast aluminum, and with the wall plate portion of the bracket drilled to receive a 3/8" bolt. Locate brackets not more than 48" on center. Provide wall return fittings of cast aluminum, flush type, with the brackets. Secure wall brackets and wall return fittings to building construction.

2) Concrete & solid masonry anchorage: Use stainless steel anchor bolt expansion shields and lag bolts or self-drilling anchors with a minimum of 1,000 lbs. withdrawal.

C. Installation

1) Carefully lay out locations of all handrails / guardrails. Core drill holes for posts into concrete pavements and steps to depths as detailed. Diameter of holes shall be sufficient to accept posts with additional clearance for epoxy grout.

2) Install handrails / guardrails as detailed at locations as shown on the Drawings. Ensure proper alignment to finish elevations. Provide intermediate posts at equal intervals, 4’ o.c. maximum, or as detailed.

3) Grout with epoxy grout as per manufacturer's specifications. Allow grout to set for sufficient time before applying tension.

4) Protect all surfaces.

3.2 CLEANING

A. Remove all stains, dirt, grease, or other substances by washing all railings thoroughly using clean water and soap; rinse with clean water.

B. Do not use acid solutions, steel wool, or other harsh abrasives.

C. Remove any material which is permanently stained as well as damaged.

END OF SECTION 055210

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Sleeve seals.
4. Grout.
5. Common electrical installation requirements.

1.3 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.

B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For sleeve seals.

1.5 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope.
4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

C. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

1.6 REGULATORY REQUIREMENTS

A. Conform to applicable provisions of the 2018 Connecticut State Building Code which include the following:
   1. International Building Code/2015.
   2. National Electric Code/2017 of the National Fire Protection Association (NFPA 70/2017).
   3. International Energy Conservation Code/2015 with Connecticut Amendments.
   4. Amendments, alterations, deletions and additions of certain provisions to the above as indicated in the Connecticut Amendments.

B. Conform to applicable provisions of the 2018 Connecticut State Fire Safety Code which include the following:
   1. International Fire Code/2015.
   2. Code for Safety to Life from Fire in Buildings, National Fire Protection Association, Inc., Standard 101 (NFPA 101), 2015 Edition.
   3. Amendments, alterations, deletions and additions of certain provisions to the above as indicated in the Connecticut Amendments.

C. Conform to applicable State of Connecticut requirements.

D. Conform to applicable City of New London requirements.

E. Obtain and pay for permits and inspections from authorities having jurisdiction.

1.7 WARRANTY

A. Contractor shall provide a One (1) Year Labor & Material Warranty that all materials and equipment furnished shall be new and of good quality, free from faults and defects and in conformance with the Contract Documents. Any defects due to faulty workmanship or materials which appear during the first year shall be corrected by the subcontractor at no additional cost to the Owner.

B. For all major pieces of equipment, the Warranty will commence after the equipment has been put into permanent operating mode, equipment and components have been accepted by the Engineer, and the Operating & Maintenance Manuals have been submitted and approved.

C. Submit written warranties covering work specified in Division 26.

D. Refer to individual sections for special warranty requirements.

PART 2 - PRODUCTS

2.1 SLEEVES FOR RACEWAYS AND CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel.

1. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches and no side more than 16 inches, thickness shall be 0.052 inch.
b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches and 1 or more sides equal to, or more than, 16 inches, thickness shall be 0.138 inch.

2.2 SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following into the Work include, but are not limited to, the following:
2. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Metraflex Co.
d. Pipeline Seal and Insulator, Inc.

3. Sealing Elements: EPDM or NBR interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
4. Pressure Plates: Plastic, Carbon steel, Stainless steel. Include two for each sealing element.
5. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating, of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.3 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to top of unit for wall-mounting items.

C. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

D. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches above finished floor level.

G. Size pipe sleeves to provide 1/2-inch annular clear space between sleeve and raceway or cable, unless indicated otherwise.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry

1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants”.

3.3 SLEEVE-SEAL INSTALLATION

A. Install to seal exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

END OF SECTION 260500

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes: Grounding systems and equipment.

B. Section includes grounding systems and equipment.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Informational Submittals: Plans showing dimensioned as-built locations of grounding features specified in "Field Quality Control" Article, including the following:
1. Ground rods.

C. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.2 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy, pressure type with at least two bolts.

1. Pipe Connectors: Clamp type, sized for pipe.

C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
2. Connections to Structural Steel: Welded connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.

1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding

electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch grounding bus.
3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

C. Metal and Wood Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
1. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
2. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.

C. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.4 LABELING

A. Comply with requirements in Division 26 Section "Identification for Electrical Systems" Article for instruction signs. The label or its text shall be green.

B. Install labels at the telecommunications bonding conductor and grounding equalizer and at the grounding electrode conductor where exposed.

1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the facility manager."

3.5 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal**,** at ground test wells, and at individual ground rods. Make tests at ground rods before any conductors are connected.

    a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
    b. Perform tests by fall-of-potential method according to IEEE 81.

C. Grounding system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. Report measured ground resistances that exceed the following values:

1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 10 ohms.
2. Power and Lighting Equipment or System with Capacity of 500 to 1000 kVA: 5 ohms.
3. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
4. Power Distribution Units or Panelboards Serving Electronic Equipment: 1 ohm(s).
5. Substations and Pad-Mounted Equipment: 5 ohms.
6. Manhole Grounds: 10 ohms.

F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 26 05 33

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. ENT: Electrical nonmetallic tubing.

C. EPDM: Ethylene propylene diene monomer rubber.

D. FMC: Flexible metal conduit.

E. IMC: Intermediate metal conduit.

F. LFMC: Liquidtight flexible metal conduit.

G. LFNC: Liquidtight flexible nonmetallic conduit.

H. NBR: Acrylonitrile-butadiene rubber.

I. RNC: Rigid nonmetallic conduit.

1.4 SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. Shop Drawings: For the following raceway components. Include plans, elevations, sections, details, and attachments to other work.

1. Custom enclosures and cabinets.
2. For handholes and boxes for underground wiring, including the following:

a. Duct entry provisions, including locations and duct sizes.
b. Frame and cover design.
c. Grounding details.
d. Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.
e. Joint details.

C. Coordination Drawings: For layout of equipment within service enclosure cabinets.

D. Manufacturer Seismic Qualification Certification: Submit certification that enclosures and cabinets and their mounting provisions, including those for internal components, will withstand seismic forces in the project area.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

a. The term "withstand" means "the cabinet or enclosure will remain in place without separation of any parts when subjected to the seismic forces specified and the unit will retain its enclosure characteristics, including its interior accessibility, after the seismic event."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

E. Source quality-control test reports.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. AFC Cable Systems, Inc.
2. Alflex Inc.
3. Allied Tube & Conduit; a Tyco International Ltd. Co.
4. Anamet Electrical, Inc.; Anaconda Metal Hose.
5. Electri-Flex Co.

6. Manhattan/CDT/Cole-Flex.
7. Maverick Tube Corporation.
8. O-Z Gedney; a unit of General Signal.
9. Wheatland Tube Company.

B. Rigid Steel Conduit: ANSI C80.1.

C. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit and IMC.

1. Comply with NEMA RN 1.
2. Coating Thickness: 0.040 inch, minimum.

D. LFMC: Flexible steel conduit with PVC jacket.

E. Fittings for Conduit (Including all Types and Flexible and Liquidtight), and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.
2. Coating for Fittings for PVC-Coated Conduit: Minimum thickness, 0.040 inch, with overlapping sleeves protecting threaded joints.

F. Joint Compound for Rigid Steel Conduit or IMC: Listed for use in cable connector assemblies, and compounded for use to lubricate and protect threaded raceway joints from corrosion and enhance their conductivity.

2.2 METAL WIREWAYS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper B-Line, Inc.
2. Hoffman.
3. Square D; Schneider Electric.

B. Description: Sheet metal sized and shaped as indicated, NEMA 250, Type 3R, unless otherwise indicated.

C. Fittings and Accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Wireway Covers: Hinged type, Screw-cover type, Flanged-and-gasketed type, or as indicated.

E. Finish: Manufacturer's standard enamel finish.

2.3 BOXES, ENCLOSURES, AND CABINETS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. EGS/Appleton Electric.
3. Erickson Electrical Equipment Company.
4. Hoffman.
5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
6. O-Z/Gedney; a unit of General Signal.
7. RACO; a Hubbell Company.
8. Robroy Industries, Inc.; Enclosure Division.
9. Scott Fetzer Co.; Adalet Division.
10. Spring City Electrical Manufacturing Company.
11. Thomas & Betts Corporation.
12. Walker Systems, Inc.; Wiremold Company (The).
13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.

B. Cast-Metal Outlet and Device Boxes: NEMA FB 1, cast feralloy, Type FD, with gasketed cover.

C. Cast-Metal Access, Pull, and Junction Boxes: NEMA FB 1, galvanized cast iron with gasketed cover.

D. Hinged-Cover Enclosures: NEMA 250, Type 3R, with continuous-hinge cover with flush latch, unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.

E. Cabinets:

1. Service enclosure cabinet shall be NEMA 4X enclosure; 12 gauge stainless steel (304) with continuously welded seams.

2. The door shall be continuous hinge with stainless steel pin held closed by three-point latching mechanism with recessed cylinder lock and latch dead bolt with protective shroud. Lock shall be keyed as directed by the City of New London. Provide 5 keys for the lock. The door shall be provided with a 90 degree locking door stop to prevent the door from opening more than 90 degrees and to prevent the door from closing on workers. Provide door with a drawing pocket.

3. The interior shall be provided with 12 gauge metal panel for mounting electrical equipment; finish with white enamel. Provide grounding lug on panel for bonding.

2.4 SLEEVES FOR RACEWAYS

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.

C. Sleeves for Rectangular Openings: Galvanized sheet steel with minimum 0.052- or 0.138-inch thickness as indicated and of length to suit application.

D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

2.5 SLEEVE SEALS

A. Basis-of-Design Product: Subject to compliance with requirements, provide the product indicated on Drawings or a comparable product by one of the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

B. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Stainless steel. Include two for each sealing element.
3. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:

1. Exposed Conduit: Rigid steel conduit.
2. Concealed Conduit, Aboveground: Rigid steel conduit.
3. Underground Conduit: Rigid steel conduit, Type EPC-40-PVC or EPC-80-PVC, direct buried unless concrete encasement is indicated on Drawings.
4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC (maximum length 5’).
5. Boxes and Enclosures, Aboveground: NEMA 250, Type 4X.

B. Minimum Raceway Size: 3/4-inch trade size.

C. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with that material. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer.

3.2 INSTALLATION

A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.

B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

C. Complete raceway installation before starting conductor installation.

D. Arrange stub-ups so curved portions of bends are not visible above the finished slab.

E. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.

F. Raceways Embedded in Slabs:

1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.
2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
3. Provide non-metallic listed sleeves for all concrete wall & floor penetrations.

G. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

H. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors, including conductors smaller than No. 4 AWG.

I. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

J. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where otherwise required by NFPA 70.

K. Expansion-Joint Fittings for RMC and PVC: Install in each run of aboveground conduit at structural expansion joints and where otherwise required by NFPA 70. Materials shall comply

with UL Standard 5148. Furnish with grounding strap and clamps. Use Crouse-Hinds Model XJ_81 or equal.

L. Flexible Conduit Connections: Use maximum of 60 inches of flexible conduit for recessed and semi-recessed lighting fixtures, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

1. Use LFMC in damp or wet locations.

3.3 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Rectangular Sleeve Minimum Metal Thickness:

1. For sleeve cross-section rectangle perimeter less than 50 inches and no side greater than 16 inches, thickness shall be 0.052 inch.
2. For sleeve cross-section rectangle perimeter equal to, or greater than, 50 inches and 1 or more sides equal to, or greater than, 16 inches, thickness shall be 0.138 inch.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Cut sleeves to length for mounting flush with both surfaces of walls.

G. Extend sleeves installed in floors 2 inches above finished floor level.

H. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway unless sleeve seal is to be installed or unless seismic criteria require different clearance.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

3.4 SLEEVE-SEAL INSTALLATION

A. Install to seal underground, exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway material and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.5 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 26 05 43

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Direct-buried conduit, ducts, and duct accessories.
2. Concrete-encased conduit, ducts, and duct accessories.
3. Handholes and boxes.

1.3 DEFINITIONS

A. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include duct-bank materials, including separators and miscellaneous components.
2. Include ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
3. Include accessories for manholes, handholes, boxes, and other utility structures.
4. Include warning tape.

B. Shop Drawings:

1. Precast or Factory-Fabricated Underground Utility Structures:

a. Include plans, elevations, sections, details, attachments to other work, and accessories.
b. Include duct entry provisions, including locations and duct sizes.
c. Include reinforcement details.
d. Include frame and cover design and manhole frame support rings.
e. Include grounding details.
f. Include dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
g. Include joint details.

2. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:

    a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
    b. Include duct entry provisions, including locations and duct sizes.
    c. Include cover design.
    d. Include grounding details.
    e. Include dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.5 INFORMATIONAL SUBMITTALS

A. Duct-Bank Coordination Drawings: Show duct profiles and coordination with other utilities and underground structures.

1. Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.
2. Drawings shall be signed and sealed by a qualified professional engineer.

B. Product Certificates: For concrete and steel used in precast concrete handholes, as required by ASTM C 858.

C. Qualification Data: For professional engineer and testing agency responsible for testing nonconcrete handholes and boxes.

D. Source quality-control reports.

E. Field quality-control reports.

1.6 MAINTENANCE MATERIALS SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

1.8 FIELD CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions, and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Architect, Construction Manager and Owner no fewer than 6 days in advance of proposed interruption of electrical service.

2. Do not proceed with interruption of electrical service without Construction Manager's written permission.

B. Ground Water: Assume ground-water level is at grade level unless a lower water table is noted on Drawings.

C. Ground Water: Assume ground-water level is 36 inches below ground surface unless a higher water table is noted on Drawings.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR DUCTS AND RACEWAYS

A. Comply with ANSI C2.

2.2 CONDUIT

A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.

B. RNC: NEMA TC 2, Type EPC-40-PVC and Type EPC-80-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

C. Duct Accessories:

1. Warning Tape: Underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."

2.3 PRECAST CONCRETE HANDHOLES AND BOXES

A. See drawings for details.

B. Comply with ASTM C 858 for design and manufacturing processes.

C. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.

1. Frame and Cover: Weatherproof steel frame, with hinged steel access door assembly with tamper-resistant, captive, cover-securing bolts.

   a. Cover Hinges: Concealed, with hold-open ratchet assembly.
   b. Cover Handle: Recessed.

2. Frame and Cover: Weatherproof aluminum frame with hinged aluminum access door assembly with tamper-resistant, captive, cover-securing bolts.

a. Cover Hinges: Concealed, with hold-open ratchet assembly.
b. Cover Handle: Recessed.

3. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
4. Cover Legend: Molded lettering, "ELECTRIC."
5. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.
6. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.

7. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.

8. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.

a. Type and size shall match fittings to duct or conduit to be terminated.
b. Fittings shall align with elevations of approaching ducts and be located near interior corners of handholes to facilitate racking of cable.

2.4 HANDHOLES AND BOXES OTHER THAN PRECAST CONCRETE

A. General Requirements for Handholes and Boxes: Comply with SCTE 77. Comply with tier requirements in "Underground Enclosure Application" Article.

1. Color: Green.
2. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.
3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC."

B. Polymer Concrete Handholes and Boxes with Polymer Concrete Cover: Molded of sand and aggregate, bound together with a polymer resin, and reinforced with steel or fiberglass or a combination of the two.

1. See drawing for further details.

2.5 SOURCE QUALITY CONTROL

A. Test and inspect precast concrete utility structures according to ASTM C 1037.

B. Nonconcrete Handhole and Pull-Box Prototype Test: Test prototypes of manholes and boxes for compliance with SCTE 77. Strength tests shall be for specified tier ratings of products supplied.

1. Tests of materials shall be performed by an independent testing agency.

2. Strength tests of complete boxes and covers shall be by either an independent testing agency or manufacturer. A qualified registered professional engineer shall certify tests by manufacturer.
3. Testing machine pressure gages shall have current calibration certification, complying with ISO 9000 and ISO 10012, and traceable to NIST standards.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate layout and installation of ducts, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.

B. Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of ducts and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Architect.

C. Clear and grub vegetation to be removed and protect vegetation to remain according to Section 311000 "Site Clearing." Remove and stockpile topsoil for reapplication according to Section 311000 "Site Clearing."

3.2 GROUNDING

A. Ground underground ducts and utility structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.3 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:

1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 6-inch long mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.
3. Test grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Section 260526 "Grounding and Bonding for Electrical Systems."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.4 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of manholes, including sump. Remove foreign material.

END OF SECTION 260543

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels.
8. Miscellaneous identification products.

1.3 SUBMITTALS

A. Product Data: For each electrical identification product indicated.

B. Samples: For each type of label and sign to illustrate size, colors, lettering style, mounting provisions, and graphic features of identification products.

C. Identification Schedule: An index of nomenclature of electrical equipment and system components used in identification signs and labels.

1.4 QUALITY ASSURANCE

A. Comply with ANSI A13.1 and IEEE C2.

B. Comply with NFPA 70.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with ANSI Z535.4 for safety signs and labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

1.5 COORDINATION

A. Coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual; and with those required by codes, standards, and 29 CFR 1910.145. Use consistent designations throughout Project.

B. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

C. Coordinate installation of identifying devices with location of access panels and doors.

PART 2 - PRODUCTS

2.1 POWER RACEWAY IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway size.

B. Colors for Raceways Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Green field with no letters for tagging generator circuits.
3. White field with no letters for tagging perimeter controlled circuits.
4. Legend: Indicate voltage and system or service type.

C. Self-Adhesive Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

D. Snap-Around Labels for Raceways Carrying Circuits at 600 V or Less: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

E. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

F. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.2 POWER AND CONTROL CABLE IDENTIFICATION MATERIALS

A. Comply with ANSI A13.1 for minimum size of letters for legend and for minimum length of color field for each raceway and cable size.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Metal Tags: Brass or aluminum, 2 by 2 by 0.05 inch, with stamped legend, punched for use with self-locking cable tie fastener.

D. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

E. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

2.3 CONDUCTOR IDENTIFICATION MATERIALS

A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

C. Snap-Around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeve, with diameter sized to suit diameter of raceway or cable it identifies and to stay in place by gripping action.

D. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.

E. Write-On Tags: Polyester tag, 0.015 inch thick, with corrosion-resistant grommet and cable tie for attachment to conductor or cable.

1. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
2. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.4 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.
3. Inscriptions for Orange-Colored Tapes: TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE.

C. Tag:

1. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the conductive core, bright-colored, continuous-printed on one side with the inscription of the utility, compounded for direct-burial service.
2. Overall Thickness: 5 mils.
3. Foil Core Thickness: 0.35 mil.
4. Weight: 28 lb/1000 sq. ft.
5. 3-Inch Tensile According to ASTM D 882: 70 lbf, and 4600 psi.

2.5 WARNING LABELS AND SIGNS

A. Comply with NFPA 70 and 29 CFR 1910.145.

B. Self-Adhesive Warning Labels: Factory-printed, multicolor, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.

C. Baked-Enamel Warning Signs:

1. Preprinted aluminum signs, punched or drilled for fasteners, with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 7 by 10 inches.

D. Metal-Backed, Butyrate Warning Signs:

1. Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate signs with 0.0396-inch galvanized-steel backing; and with colors, legend, and size required for application.
2. 1/4-inch grommets in corners for mounting.
3. Nominal size, 10 by 14 inches.

E. Warning label and sign shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES "

2.6 INSTRUCTION SIGNS

A. Engraved, laminated acrylic or melamine plastic, minimum 1/16 inch thick for signs up to 20 sq. inches and 1/8 inch thick for larger sizes.

1. Engraved legend with black letters on white face.
2. Punched or drilled for mechanical fasteners.
3. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

B. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

C. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

2.7 EQUIPMENT IDENTIFICATION LABELS

A. Adhesive Film Label: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch.

B. Adhesive Film Label with Clear Protective Overlay: Machine printed, in black, by thermal transfer or equivalent process. Minimum letter height shall be 3/8 inch. Overlay shall provide a weatherproof and UV-resistant seal for label.

C. Self-Adhesive, Engraved, Laminated Acrylic or Melamine Label: Adhesive backed, with white letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

D. Engraved, Laminated Acrylic or Melamine Label: Punched or drilled for screw mounting. White letters on a dark-gray background. Minimum letter height shall be 3/8 inch.

E. Stenciled Legend: In nonfading, waterproof, black ink or paint. Minimum letter height shall be 1 inch.

2.8 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.

2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black except where used for color-coding.

B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self extinguishing, one piece, self locking, Type 6/6 nylon.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 12,000 psi.
3. Temperature Range: Minus 40 to plus 185 deg F.
4. Color: Black.

C. Plenum-Rated Cable Ties: Self extinguishing, UV stabilized, one piece, self locking.

1. Minimum Width: 3/16 inch.
2. Tensile Strength at 73 deg F, According to ASTM D 638: 7000 psi.
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F.
5. Color: Black.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in Division 09 painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Verify identity of each item before installing identification products.

B. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

C. Apply identification devices to surfaces that require finish after completing finish work.

D. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

E. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.

F. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in

contact, side by side. Locate bands at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas. Locate bands for garage fixture circuit identification adjacent to the fixture and visible from the deck.

G. Aluminum Wraparound Marker Labels and Metal Tags: Secure tight to surface of conductor or cable at a location with high visibility and accessibility.

H. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:

1. Outdoors: UV-stabilized nylon.

I. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches overall.

J. Painted Identification: Comply with requirements in Division 09 painting Sections for surface preparation and paint application.

3.2 IDENTIFICATION SCHEDULE

A. Auxiliary Electrical Systems Conductor Identification: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels with the system name:

1. Fire Alarm.
2. Optical Fiber.

B. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.

1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder, and branch-circuit conductors.

a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
b. Colors for 208/120-V Circuits:

1) Phase A: Black.
2) Phase B: Red.
3) Phase C: Blue.

c. Colors for 480/277-V Circuits:

1) Phase A: Brown.
2) Phase B: Orange.
3) Phase C: Yellow.

d. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or

taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.

C. Install instructional sign including the color code for grounded and ungrounded conductors using adhesive-film-type labels.

D. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.

E. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.

F. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical fiber cable.

1. Install underground-line warning tape for direct-buried cables, ductbanks and cables in raceway.

G. Workspace Indication: Install floor marking tape to show working clearances in the direction of access to live parts. Workspace shall be as required by NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at panelboards and similar equipment in finished spaces.

H. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.

1. Comply with 29 CFR 1910.145.
2. Identify system voltage with black letters on an orange background.
3. Apply to exterior of door, cover, or other access.
4. For equipment with multiple power or control sources, apply to door or cover of equipment including, but not limited to, the following:

    a. Power transfer switches.
    b. Controls with external control power connections.

I. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.

J. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and the Operation and Maintenance Manual. Apply labels to disconnect switches and protection equipment, central or master units, control panels, control stations, terminal cabinets, and racks of each system. Systems include power, lighting, control, communication, signal, monitoring, and alarm systems unless equipment is provided with its own identification.

1. Labeling Instructions:

    a. Indoor Equipment: Adhesive film label. Unless otherwise indicated, provide a single line of text with 1/2-inch high letters on 1-1/2-inch high label; where two lines of text are required, use labels 2 inches high.
    b. Outdoor Equipment: Engraved, laminated acrylic or melamine label 4 inches high.
    c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
    d. Unless provided with self-adhesive means of attachment, fasten labels with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

2. Equipment to Be Labeled:

    a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be engraved laminated acrylic or melamine label.
    b. Enclosures and electrical cabinets.
    c. Access doors and panels for concealed electrical items.
    d. Transformers: Label that includes tag designation shown on Drawings for the transformer, feeder, and panelboards or equipment supplied by the secondary.
    e. Emergency system boxes and enclosures.
    f. Motor-control centers.
    g. Enclosed switches.
    h. Contactors.
    i. Battery-inverter units.

END OF SECTION 260553

SECTION 26 17 16

CALL BOXES

PART 1 GENERAL

1.01 SUMMARY

A. Equipment and materials used shall be standard components that are manufactured and available for purchase as standard replacement parts as long as the product is commercially available from the manufacturer.

1.02 QUALITY ASSURANCE

A. All tower installation, configurations, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

B. The tower shall be warrantied against any defects in material and workmanship under normal use for a period of twenty-four (24) months from date of installation, provided that manufacturer receives a completed "Installation Certification" certifying the date on which the system has been installed. An "Installation Certification" card shall be enclosed with every unit. In the event that no "Installation Certification" is received by manufacturer, the twenty-four (24) months will commence on the date of shipment by the manufacturer.

C. The blue light and faceplate light shall be warrantied against any defects in material and workmanship under normal use for a period of twenty-four (24) months from date of installation, provided that manufacturer receives a completed "Installation Certification" certifying the date on which the system has been installed. An "Installation Certification" card shall be enclosed with every unit. In the event that no "Installation Certification" is received by manufacturer, the twenty four (24) months will commence on the date of shipment by the manufacturer.

1.03 CERTIFICATIONS AND STANDARDS

A. The included LED blue light shall be certified to:

1. UL Std 1598
2. CSA Std C22.2 No. 250.0

PART 2 PRODUCTS

2.01 GENERAL

A. The tower shall:

1. Consist of a light-weight free-standing aluminum emergency phone tower mount with an integrated flashing LED blue light.
2. Have an integrated LED faceplate light, mounted directly above the phone faceplate.

2.02 HARDWARE

A. The tower shall:

1. Be constructed of 0.125” thick aluminum and weigh approximately 45 lbs.
2. Measure:
    a. Tower only: 10” W x 6.75” D x 106.38” H, with a 1” radius on each corner.
    b. Tower, Blue Light, and Aerators: 11.29” W x 6.75” D x 113.27” H.
3. Utilize a high-gloss, corrosion-inhibitive coating that shall be applied to withstand prolonged exposure to hard environments.
    a. Tower shall be submerged in a Mil-Spec C-5541 Clear RoHS compliant anodyne bath to a thickness of 2-3 mils.
    b. Tower shall be hand sanded for smoothness, welds inspected, and sharp edges removed if necessary.
    c. Tower shall have a 2-4 mil layer of customer specified powder color applied.
    d. Tower shall be cured at 400°F for 15 minutes before final visual inspection.

B. The tower base plate shall:

1. Be 2.0” above the tower base.
2. Be constructed of 0.50” Aluminum.
3. Have a 4” diameter center hole for wiring access.
4. Have four 1” holes for anchor bolt attachment.

C. The tower wiring access opening shall:

1. Measure 30”H x 10” W.
2. Be located 5” above the base of the tower.
3. Have a flush cover plate that shall be held in place by eight 10-24 countersunk, tamper-resistant spanner screws.

D. The tower shall have an opening in the front to accommodate flush mounting an emergency phone. The phone opening shall:

1. Measure 10” H x 6.75” W.
2. Have six self-clinching 10-24 stainless steel threaded nuts to mount the emergency phone.

E. Directly below the tower phone opening, the tower shall have a section with a 30° downward slope from rear to front, spanning the depth of the phone opening to the full tower depth.

F. The tower shall have the word “EMERGENCY” emblazoned on all four sides in 3.25” high reflective white letters. Custom lettering, sizes and colors are available.

G. The tower shall have a removable cap plate that:

1. Is held in place with eight 10-24 countersunk, tamper-resistant spanner screws.

H. The tower blue light shall:

1. Be mounted to the tower cap plate at the top of the tower with three 10-24 tamper-resistant spanner screws.
2. Have a polycarbonate refractor lens assembly with a prismatic pattern to increase visibility at greater distances.

I. The tower shall have two pressure compensating aerators to increase airflow and reduce internal condensation.

2.03 FUNCTIONALITY

A. Blue Light

1. The blue light shall remain lit at all times.
2. The blue light shall automatically flash 78 times per minute when triggered by the emergency phone.
3. The blue light shall have an illumination rating of 209 lumens (peak).
4. The blue light shall retain 70% of its initial output intensity after 50,000 hours of operation.

B. Faceplate Light

1. The faceplate light shall remain lit at all times.
2. The faceplate light shall have a concealed, ultra-bright LED design.
3. The faceplate light LEDs shall have no less than 50,000 hour lifetime.

2.04 POWER REQUIREMENTS

A. The tower shall be powered by one of the following power sources:

1. 12VDC – Nominal: 9 Watts
2. 24VDC – Nominal: 9 Watts
3. 24VAC – Nominal: 9 Watts
4. 120VAC – Nominal: 9 Watts

PART 3 EXECUTION

3.01 INSTALLATION

A. The Contractor shall carefully follow instructions in documentation provided by the manufacturer to ensure all steps have been taken to provide a reliable, easy-to-operate system.

B. All equipment shall be tested and configured in accordance with instructions provided by the manufacturer prior to installation.

C. The tower shall include 24-inch long J-bolts for mounting into a 24” x 24” concrete foundation. Depth to vary according to local regulations and other site-specific considerations.

D. The J-bolts shall protrude approximately 5 inches from the surface of the foundation.

END OF SECTION 261716

SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Service rated panelboards.
2. Lighting and appliance branch-circuit panelboards.

1.3 DEFINITIONS

A. SVR: Suppressed voltage rating.

B. TVSS: Transient voltage surge suppressor.

1.4 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

1.5 SUBMITTALS

A. Product Data: For each type of panelboard, switching and overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types and details for types other than NEMA 250, Type 1.

3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Include evidence of NRTL listing for series rating of installed devices.
6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
7. Include wiring diagrams for power, signal, and control wiring.
8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device.

C. Qualification Data: For qualified testing agency.

D. Seismic Qualification Certificates: Submit certification that panelboards, overcurrent protective devices, accessories, and components will withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems." Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

E. Field Quality-Control Reports:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

F. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

G. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: Member company of NETA or an NRTL.

1. Testing Agency's Field Supervisor: Currently certified by NETA to supervise on-site testing.

B. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

C. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

E. Comply with NEMA PB 1.

F. Comply with NFPA 70.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.

B. Handle and prepare panelboards for installation according to NECA 407 and NEMA PB 1.

1.8 PROJECT CONDITIONS

A. Environmental Limitations:

1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:

    a. Ambient Temperature: Not exceeding minus 22 deg F (minus 30 deg C) 23 deg F (minus 5 deg C) to plus 104 deg F (plus 40 deg C).
    b. Altitude: Not exceeding 6600 feet (2000 m).

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet (2000 m).

1.9 COORDINATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace transient voltage suppression devices that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

1.11 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Keys: Two spares for each type of panelboard cabinet lock.
2. Circuit Breakers Including GFCI and Ground Fault Equipment Protection (GFEP) Types: Two spares for each panelboard.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

B. Enclosures: Flush- and surface-mounted cabinets.

1. Rated for environmental conditions at installed location.
   a. Outdoor Locations: NEMA 250, Type 3R.

2. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover.
4. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and ceiling or floor.
5. Gutter Extension and Barrier: Same gage and finish as panelboard enclosure; integral with enclosure body. Arrange to isolate individual panel sections.
6. Finishes:

   a. Panels and Trim: Steel and galvanized steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
   b. Back Boxes: Same finish as panels and trim.

7. Directory Card: Inside panelboard door, mounted in metal frame with transparent protective cover.

C. Incoming Mains Location: Top and bottom.

D. Phase, Neutral, and Ground Buses:

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
3. Isolated Ground Bus: Adequate for branch-circuit isolated ground conductors; insulated from box.
4. Extra-Capacity Neutral Bus: Neutral bus rated 200 percent of phase bus and UL listed as suitable for nonlinear loads.
5. Split Bus: Vertical buses divided into individual vertical sections.

E. Conductor Connectors: Suitable for use with conductor material and sizes.

1. Material: Hard-drawn copper, 98 percent conductivity.
2. Main and Neutral Lugs: Compression type.
3. Ground Lugs and Bus-Configured Terminators: Compression type.
4. Feed-Through Lugs: Compression type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Sub-feed (Double) Lugs: Compression type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
6. Gutter-Tap Lugs: Compression type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
7. Extra-Capacity Neutral Lugs: Rated 200 percent of phase lugs mounted on extra-capacity neutral bus.

F. Service Equipment Label: NRTL labeled for use as service equipment for panelboards or load centers with one or more main service disconnecting and overcurrent protective devices.

G. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.

H. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include size and type of allowable upstream and branch devices, listed, and labeled for series-connected short-circuit rating by an NRTL.

I. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Siemens Energy & Automation, Inc.
4. Square D; a brand of Schneider Electric.

C. Panelboards: NEMA PB 1, power and feeder distribution type.

D. Doors: Secured with vault-type latch with tumbler lock; keyed alike.

1. For doors more than 36 inches (914 mm) high, provide two latches, keyed alike.

E. Mains: Circuit breaker, Fused switch, and Lugs only.

F. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.

G. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

H. Branch Overcurrent Protective Devices: Fused switches.

I. Contactors in Main Bus: NEMA ICS 2, Class A, electrically and/or mechanically held, general-purpose controller, with same short-circuit interrupting rating as panelboard.

1. Internal Control-Power Source: Control-power transformer, with fused primary and secondary terminals, connected to main bus ahead of contactor connection.
2. External Control-Power Source: 120-V branch circuit.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Siemens Energy & Automation, Inc.
4. Square D; a brand of Schneider Electric.

C. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

D. Mains: Circuit breaker or lugs only.

E. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

F. Contactors in Main Bus: NEMA ICS 2, Class A, electrically and/or mechanically held, general-purpose controller, with same short-circuit interrupting rating as panelboard.

1. Internal Control-Power Source: Control-power transformer, with fused primary and secondary terminals, connected to main bus ahead of contactor connection.
2. External Control-Power Source: 120-V branch circuit.

G. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Siemens Energy & Automation, Inc.
4. Square D; a brand of Schneider Electric.

C. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.

1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
3. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:

    a. Instantaneous trip.
    b. Long- and short-time pickup levels.
    c. Long- and short-time time adjustments.
    d. Ground-fault pickup level, time delay, and I^2t response.

4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
5. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
6. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
7. Arc-Fault Circuit Interrupter (AFCI) Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
8. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:

a. Standard frame sizes, trip ratings, and number of poles.
b. Lugs: Compression and Mechanical style, suitable for number, size, trip ratings, and conductor materials.
c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
d. Ground-Fault Protection: Remote-mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
e. Communication Capability: Universal-mounted communication module with functions and features compatible with power monitoring and control system specified in Division 26 Section "Electrical Power Monitoring and Control."
f. Shunt Trip: 120 and/or 24 V trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.
g. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage with field-adjustable 0.1- to 0.6-second time delay.
h. Auxiliary Contacts: One SPDT switch with "a" and "b" contacts; "a" contacts mimic circuit-breaker contacts and "b" contacts operate in reverse of circuit-breaker contacts.
i. Alarm Switch: Single-pole, normally open contact that actuates only when circuit breaker trips.
j. Key Interlock Kit: Externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.
k. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function with other upstream or downstream devices.
l. Multipole units enclosed in a single housing or factory assembled to operate as a single unit.
m. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
n. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.

2.5 ACCESSORY COMPONENTS AND FEATURES

A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

B. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Receive, inspect, handle, and store panelboards according to NECA 407 and/or NEMA PB 1.1.

B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.

C. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install panelboards and accessories according to NECA 407 and/or NEMA PB 1.1.

B. Equipment Mounting: Install panelboards on concrete bases, 4-inch (100-mm) nominal thickness. Comply with requirements for concrete base specified in Division 03 Section "Cast-in-Place Concrete."

1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around full perimeter of base.
2. For panelboards, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
4. Install anchor bolts to elevations required for proper attachment to panelboards.
5. Attach panelboard to the vertical finished or structural surface behind the panelboard.

C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.

D. Comply with mounting and anchoring requirements specified in Division 26 Section "Vibration and Seismic Controls for Electrical Systems."

E. Mount top of trim [90 inches (2286 mm) above finished floor unless otherwise indicated.

F. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

G. Install overcurrent protective devices and controllers not already factory installed.

1. Set field-adjustable, circuit-breaker trip ranges.

H. Install filler plates in unused spaces.

I. Stub four 1-inch (27-GRC) empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch (27-GRC) empty conduits into raised floor space or below slab not on grade.

J. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.

K. Comply with NECA 1.

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 26 Section "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

D. Acceptance Testing Preparation:

1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
2. Test continuity of each circuit.

E. Tests and Inspections:

1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
3. Perform the following infrared scan tests and inspections and prepare reports:

    a. Initial Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each panelboard. Remove front panels so joints and connections are accessible to portable scanner.
    b. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each panelboard 11 months after date of Substantial Completion.
    c. Instruments and Equipment:

1) Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.

F. Panelboards will be considered defective if they do not pass tests and inspections.

G. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable component to function smoothly and lubricate as recommended by manufacturer.

B. Set field-adjustable circuit-breaker trip ranges as specified in Division 26 Section "Overcurrent Protective Device Coordination Study."

C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.

1. Measure as directed during period of normal system loading.
2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

3.6 PROTECTION

A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 262416

SECTION 26 27 13

ELECTRICITY METERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes equipment for electricity metering by utility company and electricity metering by Owner.

B. Service Enclosure

1.3 DEFINITIONS

A. KY Pulse: Term used by the metering industry to describe a method of measuring consumption of electricity that is based on a relay opening and closing in response to the rotation of the disk in the meter.

B. PC: Personal computer.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For electricity-metering equipment.

1. Dimensioned plans and sections or elevation layouts.
2. Wiring Diagrams: For power, signal, and control wiring. Identify terminals and wiring designations and color-codes to facilitate installation, operation, and maintenance. Indicate recommended types, wire sizes, and circuiting arrangements for field-installed wiring, and show circuit protection features.

C. Field quality-control reports.

D. Operation and Maintenance Data. In addition to items specified in Division 01 Section "Operation and Maintenance Data," include the following:

1. Application and operating software documentation.
2. Software licenses.
3. Software service agreement.

4. Hard copies of manufacturer's operating specifications, design user's guides for software and hardware, and PDF files on CD-ROM of the hard-copy Submittal.

1.5 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Receive, store, and handle modular meter center according to NECA 400.

1.7 PROJECT CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Architect and Construction Manager no fewer than two days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Architect's and Construction Manager's written permission.

B. COORDINATION

C. Electrical Service Connections: Coordinate with utility companies and components they furnish as follows:

1. Comply with requirements of utilities providing electrical power services.
2. Coordinate installation and connection of utilities and services, including provision for electricity-metering components.

1.8 UTILITY SERVICE CONNECTIONS

A. General: The necessary work, coordination and CRS submission required to meet Eversource requirements per the latest Information and Requirements issued by Eversource. Contractor shall pay all Utility fees associated with new service.

PART 2 - PRODUCTS

2.1 EQUIPMENT FOR ELECTRICITY METERING BY UTILITY COMPANY

A. Meters will be furnished by utility company.

B. Meter Sockets: Comply with requirements of electrical-power utility company.

C. Meter Sockets: Steady-state and short-circuit current ratings shall meet indicated circuit ratings.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

a. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
b. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
c. Siemens Energy & Automation, Inc.
d. Square D; a brand of Schneider Electric.

2. Housing: NEMA 250, Type 3R enclosure.
3. AIC symmetrical at rated voltage (Confirm w/Eversource).

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with equipment installation requirements in NECA 1.

B. Install meters furnished by utility company. Install raceways and equipment according to utility company's written requirements. Provide empty conduits for metering leads and extend grounding connections as required by utility company.

3.2 IDENTIFICATION

A. Comply with requirements for identification specified in Division 26 Section "Identification for Electrical Systems."

1. Series Combination Warning Label: Self-adhesive type, with text as required by NFPA 70.
2. Equipment Identification Labels: Adhesive film labels with clear protective overlay. For residential meters, provide an additional card holder suitable for printed, weather-resistant card with occupant's name.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections.

1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Tests and Inspections:

1. Connect a load of known kilowatt rating, 1.5 kW minimum, to a circuit supplied by metered feeder.

2. Turn off circuits supplied by metered feeder and secure them in off condition.
3. Run test load continuously for eight hours minimum, or longer, to obtain a measurable meter indication. Use test-load placement and setting that ensures continuous, safe operation.
4. Check and record meter reading at end of test period and compare with actual electricity used, based on test-load rating, duration of test, and sample measurements of supply voltage at test-load connection. Record test results.

C. Electricity metering will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

END OF SECTION 262713

SECTION 26 56 19

EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior solid-state luminaires that are designed for and exclusively use LED lamp technology.
2. Luminaire supports.
3. Luminaire-mounted photoelectric relays.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color rendering index.

C. Fixture: See "Luminaire."

D. IP: International Protection or Ingress Protection Rating.

E. Lumen: Measured output of lamp and luminaire, or both.

F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of luminaire.

1. Arrange in order of luminaire designation.
2. Include data on features, accessories, and finishes.
3. Include physical description and dimensions of luminaire.
4. Lamps, include life, output (lumens, CCT, and CRI), and energy-efficiency data.
5. Photometric data and adjustment factors based on laboratory tests, complying with IES Lighting Measurements Testing and Calculation Guides, of each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project IES LM-79.

a. Manufacturer's Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the NVLAP for Energy Efficient Lighting Products.
b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

6. Wiring diagrams for power, control, and signal wiring.
7. Photoelectric relays.
8. Means of attaching luminaires to supports and indication that the attachment is suitable for components involved.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Product Schedule: For luminaires and lamps use same designations indicated on drawings.

D. Delegated-Design Submittal: For luminaire supports.

1. Include design calculations for luminaire supports.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Luminaires.
2. Structural members to which luminaires will be attached.
3. Underground utilities and structures.
4. Existing underground utilities and structures.
5. Above-grade utilities and structures.
6. Existing above-grade utilities and structures.
7. Building features.
8. Vertical and horizontal information.

B. Qualification Data: For testing laboratory providing photometric data for luminaires.

C. Seismic Qualification Certificates: For luminaires, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Product Certificates: For each type of the following:

1. Luminaire.

E. Product Test Reports: For each luminaire, for tests performed by manufacturer and witnessed by a qualified testing agency.

F. Source quality-control reports.

G. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project. Use ANSI and manufacturers' codes.
2. Provide a list of all photoelectric relay types used on Project, use manufacturers' codes.

1.7 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products and complying with applicable IES testing standards.

B. Provide luminaires from a single manufacturer for each luminaire type.

C. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

D. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering prior to shipping.

1.9 FIELD CONDITIONS

A. Verify existing and proposed utility structures prior to the start of work associated with luminaire installation.

B. Mark locations of exterior luminaires for approval by Architect prior to the start of luminaire installation.

1.10 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

    a. Structural failures, including luminaire support components.
    b. Faulty operation of luminaires and accessories.
    c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NRTL Compliance: Luminaires shall be listed and labeled for indicated class and division of hazard by an NRTL.

C. FM Global Compliance: Luminaires for hazardous locations shall be listed and labeled for indicated class and division of hazard by FM Global.

D. UL Compliance: Comply with UL 1598 and listed for wet location.

E. Lamp base complying with ANSI C81.61.

F. Bulb shape complying with ANSI C79.1.

G. CRI of 70. CCT of 3000 K.

H. L70 lamp life of 100,000 hours.

I. Lamps dimmable from one hundred to zero percent (100-0%) of maximum light output.

J. Internal driver.

K. Nominal Operating Voltage: universal or as specified on the fixture schedule.

L. Lamp Rating: Lamp marked for outdoor use (Wet Location).

M. Source Limitations: Obtain luminaires from single source from a single manufacturer.

N. Source Limitations: For luminaires, obtain each color, grade, finish, type, and variety of luminaire from single source with resources to provide products of consistent quality in appearance and physical properties.

2.2 LUMINAIRE TYPES

A. Area and Site:

1. See fixture schedule for specifics and details.

2.3 MATERIALS

A. Metal Parts: Free of burrs and sharp corners and edges.

B. Sheet Metal Components: Corrosion-resistant aluminum**.** Form and support to prevent warping and sagging.

C. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.

D. Diffusers and Globes:

1. Acrylic Diffusers: One hundred percent (100%) virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
2. Glass: Annealed crystal glass unless otherwise indicated.
3. Lens Thickness: At least 0.125 inch minimum unless otherwise indicated.

E. Lens and Refractor Gaskets: Use heat- and aging-resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

F. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: Eighty-five percent (85%).
2. Specular Surfaces: Eighty-three percent (83%).
3. Diffusing Specular Surfaces: Seventy-five percent (75%).

G. Housings:

1. Rigidly formed, weather- and light-tight enclosure that will not warp, sag, or deform in use.
2. Provide filter/breather for enclosed luminaires.

H. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp characteristics:

a. "USE ONLY" and include specific lamp type.
b. Lamp diameter, shape, size, wattage, and coating.
c. CCT and CRI for all luminaires.

2.4 FINISHES

A. Variations in Finishes: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

B. Luminaire Finish: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

C. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
2. Natural Satin Finish: Provide fine, directional, medium satin polish (AA-M32); buff complying with AA-M20 requirements; and seal aluminum surfaces with clear, hard-coat wax.

a. Color: See Fixture Schedule for specifics and details.

D. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1 or SSPC-SP 8.
2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.

a. Color: As selected from manufacturer's standard catalog of colors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for luminaire electrical conduit to verify actual locations of conduit connections before luminaire installation.

C. Examine walls, roofs, canopy ceilings for suitable conditions where luminaires will be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 TEMPORARY LIGHTING

A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is substantially complete, clean luminaires used for temporary lighting and install new lamps.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Comply with NECA 1.

B. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

C. Install lamps in each luminaire.

D. Fasten luminaire to structural support.

E. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position after cleaning and relamping.
3. Support luminaires without causing deflection of finished surface.
4. Luminaire-mounting devices shall be capable of supporting a horizontal force of one hundred percent (100%) of luminaire weight and a vertical force of four hundred percent (400%) of luminaire weight.

F. Wiring Method: Install cables in raceways. Conceal raceways and cables.

G. Install luminaires level, plumb, and square with finished grade unless otherwise indicated. Install luminaires at height and aiming angle as indicated on Drawings.

H. Coordinate layout and installation of luminaires with other construction.

I. Adjust luminaires that require field adjustment or aiming. Include adjustment of photoelectric device to prevent false operation of relay by artificial light sources, favoring a north orientation.

3.4 FIELD QUALITY CONTROL

A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Verify operation of photoelectric controls.

C. Illumination Tests:

1. Measure light intensities at night. Use photometers with calibration referenced to NIST standards. Comply with the following IES testing guide(s):

a. IES LM-5.
b. IES LM-50.
c. IES LM-52.
d. IES LM-64.
e. IES LM-72.

2. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.

D. Luminaire will be considered defective if it does not pass tests and inspections.

E. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.5 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain luminaires and photocell relays.

3.6 ADJUSTING

A. Occupancy Adjustments: When requested within twelve (12) months of date of Substantial Completion, provide on-site assistance in adjusting the direction of aim of luminaires to suit occupied conditions. Make up to one additional visit to Project during other-than-normal hours for this purpose. Some of this work may be required during hours of darkness.

1. During adjustment visits, inspect all luminaires. Replace lamps or luminaires that are defective.
2. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.
3. Adjust the aim of luminaires in the presence of the Architect.

END OF SECTION 265619

SECTION 311000

SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and removing site utilities.
7. Temporary erosion- and sedimentation-control measures.

B. Related Sections:

1. Section 02 22 00 Site Preparation
2. Section 31 20 00 Earth Moving
3. Section 31 25 13 Erosion Control

1.3 DEFINITIONS

A. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.

C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.

D. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; and free of subsoil and weeds, roots, toxic materials, or other nonsoil materials.

E. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.

F. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction.

G. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or videotape.
2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.

B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

A. Preinstallation Conference: Conduct conference as requested by Owner.

1.7 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.

1. Do not proceed with work on adjoining property until directed by Owner.

C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

D. Utility Locator Service: Notify **Call Before You Dig** for area where Project is located before site clearing.

E. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place.

F. The following practices are prohibited within protection zones:

1. Storage of construction materials, debris, or excavated material.
2. Parking vehicles or equipment.
3. Foot traffic.
4. Erection of sheds or structures.
5. Impoundment of water.
6. Excavation or other digging unless otherwise indicated.
7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

G. Do not direct vehicle or equipment exhaust towards protection zones.

H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

I. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS – Not Application to this Section.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain.

C. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.

B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.

C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.

D. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

A. General: Protect trees and plants remaining on-site according to requirements in Division 01 Section "Temporary Tree and Plant Protection" or as directed by Owner.

B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations, in a manner approved by Owner.

3.4 EXISTING UTILITIES

A. Owner will arrange for disconnecting and sealing indicated utilities that serve existing structures before site clearing, when requested by Contractor.

1. Verify that utilities have been disconnected and capped before proceeding with site clearing.

B. Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place.

1. Arrange with utility companies to shut off indicated utilities.
2. Owner will arrange to shut off indicated utilities when requested by Contractor.

C. Locate, identify, and disconnect utilities indicated to be abandoned in place.

D. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Engineer not less than 48 hours in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect's written permission.

E. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.

1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
2. Grind down stumps and remove roots, obstructions, and debris to a depth of 18 inches (450 mm) below exposed subgrade in lawn areas. In all other areas remove stumps and roots in their entirety.
3. Use only hand methods for grubbing within protection zones.
4. Chip removed tree branches and dispose of off-site.

B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.

1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches (200 mm), and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

A. Remove sod and grass before stripping topsoil.

B. Strip topsoil to depth indicated on Drawings (6” minimum) in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches (50 mm) in diameter; trash, debris, weeds, roots, and other waste materials.

C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

1. Limit height of topsoil stockpiles to 72 inches (1800 mm).
2. Do not stockpile topsoil within protection zones.

3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.
4. Stockpile surplus topsoil to allow for respreading deeper topsoil.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000

EARTH MOVING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. The General Provisions of the Contract, including General and Supplementary Conditions, and Division One General Requirements apply to the work specified in this section.

B. Form 816 shall mean the State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816-2004 or its latest edition and any supplemental specifications.

1.2 SUMMARY

A. This Section includes the following:

1. All earthwork, not included under other sections, required for grading, trenching, paving, curbs, construction and reconstruction of structures, such as foundation structures or any other subsurface structures. The Contractor shall place, compact and dispose of excess excavated materials in accordance with the plans, specifications and directions of the Engineer.

2. Unclassified Excavation shall include the removal of existing pavements, curbs, earth, boulders, buried timber, tree stumps, broken concrete pieces, existing foundations (e.g. concrete block), brick and other materials of any nature that may be encountered.

3. The Contractor shall procure and place borrow fill and backfill material in accordance with this specification.

4. The Contractor shall saw cut existing pavements and/or saw cut existing curbs in accordance with these specifications and the direction of the Engineer.

5. Classified Excavation shall consist of either “Unsuitable Material” or “Rock Excavation” as defined herein, which shall be paid for on a unit basis as described in the General Conditions.

1.3 DEFINITIONS

A. “Suitable Material” or “Acceptable Material”

1. ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, and SM; free of rock or gravel larger than 6 inches in any dimension, debris, waste, frozen material, vegetation and other deleterious material

2. Any mineral (inorganic) soil, blasted or broken rock and similar materials of natural or man made origin, including mixtures thereof, are considered acceptable materials.

B. "Unacceptable Material" or "Unsuitable Material" - ASTM D 2487 soil classification groups GC, SC, ML, MH, CL, CH, OL, OH and PT.

C. "Rock Excavation" shall include the excavation, removal and disposal of solid rock, concrete and all boulders one cubic yard or more in volume that require blasting or drilling and splitting. Boulders of less than one cubic yard in volume or other materials found in excavations, however stiff, heavy and compact, including ripable rock, which, in the opinion of the Engineer, can be removed without blasting or drilling and wedging, shall not be considered as rock excavation.

PART 2 PRODUCTS

2.1 MATERIALS

A. Backfill and Borrow Fill Materials: Any Acceptable Material.

B. Subbase: Conform to Form 816, Section M.02.02 - Subbase.

C. Base: Conform to Form 816, Section M.05.01 – Processed Aggregate Base (Broken Stone option).

D. Bedding Material: Sand or sandy soil, all of which passes a 3/8" sieve, and not more than ten percent (10%) passes a No. 200 sieve.

PART 3 EXECUTION

3.1 GENERAL

A. The entire area of work shall be brought to the required lines and grades by excavation and filling. Excavated materials, acceptable in the opinion of the Engineer, shall be used in making embankments and filling the low areas of the work, and at such places as the Engineer may direct.

B. Construct base course to required depths and elevations below all concrete pads and walks, building slabs and foundations, light pole foundations, and precast concrete post foundations.

C. Construct subbase course to required depths and elevations below parking lot areas and concrete pads.

D. Construct bedding course below all drainage and utility structures.

E. Construct acceptable material below all lawn and landscaped areas.

3.2 COMPACTION REQUIREMENTS

A. See Geotechnical Study. At a minimum, all base and subbase shall be compacted to 95% relative maximum compaction as verified by an independent testing laboratory via field testing.

3.3 EXCAVATION

A. Protect existing structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect subgrade and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

C. Provide erosion and control measures to prevent erosion or displacement of soils and discharge of soil-bearing water run-off or airborne dust to adjacent properties and watercourses, in accordance with the Sediment and Erosion Control Plan and as directed by the Engineer.

D. Subbase: All soft, boggy, clayey or other objectionable material below the proposed subbase shall be removed, and the area refilled with acceptable material.

E. Boulders: The Contractor shall remove all boulders, stone or pieces of concrete, lumber, iron or other material that project above subgrade. Any stone larger than two (2) cubic feet in volume shall not be placed within two (2) feet of the finished surface.

F. Excavating for Foundations: All excavations shall be cut accurately to required lines and dimensions for work on drawings and shall be large enough to provide adequate clearance for the proper execution of the work.

G. Bottoms of Excavations: The Contractor shall level the bottoms of all excavations, to receive footings or other work supported on soil, accurately, to the lines and levels shown on the plans or as directed by the Engineer.

Where excavation for a foundation has been carried below the indicated level by error on the part of the Contractor, he will be required to fill the space between the incorrect and required depth with concrete at no additional cost to the Owner.

H. Storage and Placement: All those excavated materials which in the opinion of the Engineer are suitable for backfill shall be stored or placed within the limits of the Contract, where directed by the Engineer.

I. Surplus: All surplus materials and materials not suitable for backfill shall be removed from the site and disposed of by the Contractor. No additional payment will be made for this, but the cost thereof shall be deemed included in the price bid for "Earth Moving".

J. Shoring: Wherever necessary to maintain the banks of excavation in a safe and stable condition, the Contractor shall furnish and install temporary sheet piling or planks, braces and shores of good sound timber of adequate strength, and shall remove such piling or shoring as the foundation work progresses.

Sheeting and bracing of a type approved by the Engineer, shall be installed when the Contractor's employees are required to enter into excavations which exceed four (4) feet in depth.

The foregoing shall include the construction and removal of sheeting and bracing, the excavation and maintenance of temporary ditches, and the furnishing and operation of pumps or other appliances needed to properly drain the work. No direct compensation will be made for this work, but payment therefore shall be deemed included in the price bid.

K. Inspection: When the excavations have been carried to the required depth as shown on the drawings, the Contractor shall do no more work until after inspection by the Engineer, who shall order the foundation or other work to proceed, or further excavation, as the conditions indicate and no foundation or other work shall be done until the excavations have been approved by the Engineer.

L. Bailing and Draining: The Contractor shall furnish all materials, appliances and labor required to keep the site free from water, ice and snow during construction.

M. Utilities and Services: When any sewer, water, gas, electric or other utility service connections are encountered in the excavation operations, the service shall not be interrupted or disturbed by the Contractor unless called for on the plans and/or directed by the Engineer. It is the Contractor's responsibility to detect and protect existing utilities (to remain) from damage during construction. The Contractor shall locate buried utilities, to the best of his ability, using electronic probes, or other methods, prior to the start of excavation. The Contractor shall then proceed cautiously and perform hand excavation, as necessary, to protect the utility as directed by the Engineer, at no extra cost to the Owner.

If a utility is inadvertently damaged, it is the Contractor's responsibility to restore that utility to operating condition, equal to that existing prior to damage. The Contractor shall remain at the site with the damaged utility until it has been restored and there is no danger to the public (i.e. exposed live electrical wires, etc.).

Should the Contractor need to cut off utilities or services during the performances of the work, he shall notify the City Department or Utility Company owning or controlling services, to cut off these services.

Any services cut off or interrupted by the Contractor's operations shall be restored at the Contractor's expense.

3.4 FILL

A. Remove all vegetation, topsoil, debris, wet and unsatisfactory soil materials, obstructions, and deleterious materials from the ground surface prior to placing fills.

B. Fill and Compacting shall be carried out as directed by the Engineer, and shall be constructed in successive horizontal layers not over 6 inches in depth. It shall be spread by a "Bulldozer", or other acceptable methods, and shall be thoroughly compacted by rolling with a self-propelling roller weighing not less than ten (10) tons and completed to the satisfaction of the Engineer. In places where the character of the material makes the use of this roller impracticable or where drains or other construction may be damaged a lighter one may be substituted, or the area shall be compacted by vibratory tamping, all with the approval, and to the satisfaction of the Engineer.

C. All hollows and depressions which develop during the process of rolling and compacting shall be filled with acceptable material, and the subgrade shall again be compacted. This process of filling and compacting shall be repeated until no depressions develop.

D. Plow, strip or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing surface.

E. When subgrade or existing ground surface to receive fill has a density less than that required for fill, break up ground surface to depth required, pulverize, moisture-condition or aerate soil and recompact to required density.

3.5 BACKFILL

A. After inspection and approval of foundations and other work which is to be covered by backfill, the excavated voids shall be filled with clean excavated material, puddled and rammed solid every 6" of depth.

B. After areas and trenches have been excavated and structures constructed therein, the spaces around and above them shall be carefully backfilled with acceptable material. Backfill shall be placed on both sides of structures to approximately the same elevation at the same time. All backfill shall be thoroughly tamped and rammed in place in layers not over six (6) inches in depth, using rammers of a weight acceptable to the Engineer. If directed by the Engineer, the backfill shall be thoroughly saturated with water as it is placed.

C. Backfill adjacent to foundation walls shall be pneumatically compacted.

D. Backfilling around masonry manholes and catch basins shall not take place until the mortar has hardened and the possibility of movement is slight. Backfilling shall take place uniformly around all sides of the structure.

E. When sheeting is being withdrawn, all cavities left thereby shall be filled with acceptable material, tamped in place so as to fill all voids thoroughly. Backfill inside of sheeting shall be placed before sheeting is removed.

3.6 UTILITY TRENCHES

A. Trench excavation shall be as described in Form 816, Article 2.05.01, under the "Trench Excavation" classifications presented therein.

B. Construction methods shall conform to Articles 2.05.03 and 10.01.03 of Form 816, where applicable.

C. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit.

D. Clearance: 12 inches minimum each side of pipe or conduit.

E. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells,

joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove stones and sharp objects to avoid point loading.

F. Place and compact bedding material on rock or other unyielding bearing surfaces and to fill unauthorized excavations. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

3.7 SAW CUTTING

A. All work shall be done by competent mechanics in an approved manner to the satisfaction of the Engineer.

B. All saw cutting shall be carried out to the full depth of the pavement, curb or concrete walk to be cut. Saw cutting shall be done to accurate, neat and straight lines marked previous to commencement of work. Saw cutting shall be done with approved power saws specifically designed and manufactured for such a purpose. Compressor, backhoe or spade-cutting of the pavement will not be allowed.

C. Workmen shall wear safety clothing and eye protection while operating saw equipment and shall be thoroughly familiar in the safe operation of the equipment.

3.8 ROCK EXCAVATION

A. Rock excavation shall include the excavation, removal and disposal of solid rock, concrete and all boulders one cubic yard or more in volume that require blasting or drilling and splitting. Boulders of less than one cubic yard in volume or other materials found in excavations, however stiff, heavy and compact, including ripable rock, which, in the opinion of the Engineer, can be removed without blasting or drilling and wedging, shall not be considered as rock excavation.

D. Where boulders are on the sides of or in the bottom of excavations, they shall be wholly or partially removed at a minimum to the limits as specified and/or as determined by the Engineer. In removing boulders lodged in the sides of the excavations, the Contractor shall not disturb or undermine adjacent pavement or structures. Pavement surfaces damaged beyond reasonable limits as determined by the Engineer, shall be repaired by the Contractor at no additional cost to the Owner. In general, boulders or rock fragments which extend under paved surfaces shall be removed by blasting or mechanical splitting.

E. Unauthorized excavations in rock, or excavations made beyond or below the indicated limits shall be refilled and compacted with approved gravel fill at no additional cost to the Owner.

F. Depressions below the required grade resulting from the removal of boulders and rock fragments shall be refilled with compacted gravel fill at no additional cost to the Owner.

G. Rock payment lines are to be measured “in place” and are limited to the following:

1. Two feet outside of concrete work for which forms are required, except footings.

2. In pipe trenches, 6" below invert elevation of pipe and 2 feet wider than the inside diameter of pipe, but not less than 3 feet minimum trench width.

3. Neat outside dimensions of concrete work where no forms are required.

END OF SECTION 312000

SECTION 312513

EROSION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division 1 General Requirements and Specific Requirements, apply to this Section.

B. "2002 Connecticut Guidelines for Soil Erosion and Sediment Control," Connecticut Council on Soil and Water Conservation, CT DEP Bulletin 34, inclusive of all supplements and/or its latest revision or edition (CTGSESC).

1.2 SECTION INCLUDES

A. Hay bales, filter fabric fence (silt fence), sediment barriers and sedimentation structures

B. Temporary mulch

C. Temporary sediment basins as required by field conditions

D. Anti tracking Pad

1.3 QUALITY ASSURANCE

A. All erosion and sediment control measures will be constructed in accordance with the standards and specifications of the "2002 Connecticut Guidelines for Soil Erosion and Sediment Control."

1.4 PROJECT CONDITIONS

A. Land disturbance shall be kept to a minimum; re-stabilization will be scheduled as soon as possible. Temporary seeding or permanent hydro-seeding should take place immediately upon completion of grading. Permanent seeding shall be scheduled during the following times: March 15 - June 15 or August 15 - October 15.

B. Sediment and erosion control measures will be installed prior to construction whenever possible and will be maintained in effective condition throughout the construction period.

C. Hay bale filters and silt fence will be installed at the base of all proposed slopes and on the downhill side of any area receiving new planting and as instructed by the Engineer.

D. Additional control measures will be installed during the construction period as required by field conditions or as requested by the Engineer.

E. Sediment removed from control structures will be disposed of in a manner that is consistent with the intent of the plan.

F. Mulch all new slopes 3% or greater. Use straw or hay (70-90 lbs. 1,000 sq. ft.), free of weeds or coarse matter. Chemical binder such as Petroset Terratack Hydro Mulch and Aerospray will be used as recommended by manufacturer to anchor mulch. Mulch must be inspected periodically, in particular, after rainstorms to check for rill erosion. Where erosion is severe, repair the eroded area and place additional mulch as required to control the erosion. Grasses shall not be considered established until a ground cover is achieved, which is mature enough to control soil erosion and to survive severe weather conditions.

PART 2 - PRODUCTS

2.1 HAY BALES

A. Hay bales shall be made of hay and shall be sufficiently bound with either wire or nylon twine to resist breaking apart during their use, shipment or placement. Weight of bales used shall be between 40 lbs. minimum weight and 120 lbs. maximum weight.

B. Stakes shall be hardwood, minimum two inches (2") by two inches (2") by three feet (3') long.

2.2 FILTER FABRIC FENCE (SILT FENCE)

A. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene filaments and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Minimum Filtering Efficiency:	75%
Minimum Tensile Strength at 20% Elongation:	
for Extra Strength:	50 lbs./lin. in.
for Regular Strength:	30 lbs./lin. in.
Minimum Flow Rate:	0.3 gal./min./sq.ft.

B. Posts for silt fences shall comply with the recommendations of the manufacturer. Minimum sizes shall be two inches (2") by three inches (3") nominal for wood, or 0.5 lbs. per foot for steel; length shall be five feet (5').

C. Stakes shall be a minimum of two inches (2") by two inches (2") nominal for wood, or equivalent metal; 3 feet long.

D. Materials incidental to and necessary for the installation shall conform to the requirements of the manufacturer of the filter fabric.

2.3 TEMPORARY MULCH: clean oat straw, wheat straw, timothy hay, a mixture of clover and timothy hay or other approved native or forage grasses; well-seasoned before bailing, free from mature seed-bearing stalks or roots of prohibited or noxious weeds.

2.4 CRUSHED STONE: Crushed or broken stone shall conform to the requirements of CT DOT Form 816 #3 Stone (M.01.01)

2.5 BONDED FIBER MATRIX: Bindex BFM™ for all 2:1 slopes or greater. Bindex Wood WT™ for slopes between 2:1 and 3:1.

PART 3 - EXECUTION

3.1 PREPARATION

A. Conduct construction operations in compliance with all terms of regulation agency requirements, including requirements noted on the Contract Drawings.

B. Retain all sediments within the contract limits, and within designated disposal areas.

C. Install erosion control measures prior to beginning site disturbance. Maintain erosion control measures throughout construction period, install additional measures if necessary to retain all sediment on site. Install any additional erosion control measures that may be required by local regulatory officials.

3.2 SEDIMENT BARRIERS

A. Sediment barriers may consist of filter fabric fence (silt fence) or hay bales for sheet flow applications installed in accordance with CTGSESC.

B. Hay bales:

1. Bales shall be placed in a single row, with ends of adjacent bales tightly abutting one another. Bales shall be oriented lengthwise on the contour for sheet flow applications, perpendicular to the contour for channel flow applications, and in a square or rectangular shape around depressed catch basin inlets.

2. Bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales to prevent deterioration of the bindings.

3. The barrier shall be entrenched and backfilled. A trench shall be excavated the width of the bale and the length of the proposed barrier to a minimum depth of four inches (4"). After the bales are staked and chinked, the excavated soil shall be backfilled against the barrier. Backfill soil shall conform to the ground level on the downhill side and shall be built up to four inches (4") against the uphill side of the barrier.

4. For channel flow applications, the barrier shall be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment laden runoff will flow either through or over the barrier but not around it.

5. The areas immediately around catch basins may be excavated slightly to increase ponding of runoff water around catch basins.

6. Each bale shall be securely anchored by at least two stakes driven through the bale. The first stake in each bale shall be driven toward the previously laid bale to force the bales together. Stakes shall be driven deep enough into the ground to securely anchor the bales.

7. The gaps between bales shall be chinked with straw to prevent water from escaping between bales.

8. In sloping areas where surface flow follows the bale line, perpendicular bale checks shall be installed at appropriate intervals (100 feet maximum).

C. Filter fabric fence (silt fence):

1. The height of the barrier shall not exceed thirty six inches (36"). Ideally, the filter fence shall be placed ten feet (10') away from the toe of slope.

2. When joints are necessary, filter cloth shall be spliced together only at a support post, with minimum six inch (6") overlap, and securely sealed in accordance with the manufacturer’s recommendations.

3. Posts shall be spaced a maximum of ten feet (10') apart at the barrier location and driven securely into the ground (minimum 18 inches). When extra strength fabric is used without the wire support fence, post spacing shall be as manufacturer recommends.

4. A trench shall be excavated approximately six inches (6") wide and six inches (6") deep along the line of posts and upslope from the barrier in accordance with manufacturer's recommendations.

5. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy-duty wire staples at least one inch (1") long, tie wire or hog rings. The wire shall extend into the trench a minimum of two inches (2") and shall not extend more than thirty-six inches (36") above the original ground surface.

6. The standard strength filter fabric shall be stapled, wired or tied to the wire fence, and eight inches (8") of the fabric shall be extended into the trench. Filter fabric shall not be stapled to existing trees.

7. When extra strength filter fabric or burlap and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled, wired or tied directly to the posts with all other provisions of item No. (6) applying.

8. The trench shall be backfilled and the soil compacted over the filter fabric.

3.3 TEMPORARY MULCH

A. Place mulch uniformly in a continuous blanket at a rate of 2 2 tons per acre, or two 50 pound bales per 1,000 square feet of area. A mechanical blower may be used for mulch application. Do not spread/apply mulch by mechanical means or by hand on windy or gusty days.

B. Crimp straw into soil by mechanical means.

C. On all slopes 4:1 or steeper, anchor mulch with liquid tackifier applied uniformly at a rate of 60 gallons per acre.

D. Protect existing buildings, new and existing paving, new and existing planting and all non-seeded areas and areas outside the contract limit line from liquid tackifier over-spray and temporary mulch.

3.4 INSPECTION AND MAINTENANCE

A. General

1. Inspection shall be frequent, and shall be made after each storm event. Repair or replacement shall be made promptly as needed.

B. Hay bales

1. Cleanout of accumulated sediment behind the bales is necessary if 1/2 of the original height of the bales becomes filled with sediment.

2. Hay bales shall be replaced after their expected useful life of 60 days.

3. Bale barriers shall be removed when they have served their usefulness, but not before the upslope areas have been permanently stabilized and the completion of construction activities.

C. Filter Fabric Fence

1. Sediment deposits should be removed when they reach approximately one-half the height of the barrier.

2. Should the fabric decompose or become ineffective and the barrier still be necessary, the fabric shall be replaced promptly.

3. Filter barriers shall be removed when they have served their useful purpose, but not before the upslope area has been permanently stabilized and the completion of construction activities.

4. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared and seeded.

5. Provide an anti-tracking pad to the dimensions and locations shown in the contract drawings.

END OF SECTION 312513

SECTION 321216

ASPHALT PAVING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including Division 1 General Requirements and Specific Requirements, apply to this Section.

B. "Form 816" shall mean the State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816-2004 or its latest edition and any supplemental specifications.

1.2 SUMMARY

A. This Section includes the materials, labor, installation and incidental costs for the installation of subbase material, base materials, bituminous concrete pavement and painted pavement markings.

1.3 RELATED SECTIONS

A. Section 31 20 00 – Earth Moving

1.4 SUBMITTALS

A. Material Certificates: Provide material certificates signed by the material producer and the Contractor, certifying that materials and products comply with specified requirements.

1.5 QUALITY ASSURANCE

A. Material and Methods of Construction: Shall comply with the following standards:

1. American Society for Testing and Materials (ASTM).

2. American Association of State Highway and Transportation Officials (AASHTO).

3. Asphalt Institute (AI).

4. State of Connecticut DOT Standard Specifications, Form 816, inclusive of all supplements.

B. Testing: Compaction tests will be required by the Owner and shall be paid for by the Owner. Testing shall consist of density testing of the base and top courses of pavement. (Subbase shall be tested in accordance with Section 312000 “Earth Moving”)

1. Class 1 and 2 pavement shall be compacted to a density of at least 92 percent and no more than 97 percent of the theoretical density in accordance with CT DOT standards as outlined in Form 816.

2. The Contractor is responsible to schedule compaction tests and to allow adequate time for the proper execution of said tests. If tests indicate that density requirements have not been achieved, the Contractor shall continue compacting. If after recompacting, sufficient density is still not achieved, the Contractor shall remove all pavement from that day’s paving operation and place and compact new pavement.

C. Pavement cores: The Owner may require paving cores to be taken to determine final pavement thickness. The amount and location of cores shall be determined by the Engineer and paid for by the Contractor.

D. Allowable Tolerances: Final surface of base materials within 3/8" from a required grade. Final pavement thicknesses shall conform to specified requirements as shown in the Drawings. Test for smoothness using a ten (10) foot long straightedge. Surface shall not vary more than 1/4" from straightedge when placed in any direction. In no case will water be allowed to stand or puddle on any finished pavement.

E. Permits/Approvals: The Contractor shall obtain approval of construction and secure all permits for all work from any authorities having jurisdiction.

1.6 DELIVERY, STORAGE AND HANDLING

A. Transporting shipments of bituminous concrete material shall be made in tight vehicles previously cleaned of all foreign material, and delivered to the site, so that it will not become contaminated in any way.

1.7 PROJECT CONDITIONS

A. Weather Limitations

1. Base material shall not be placed on frozen or saturated subbase material.

2. Bituminous concrete paving material shall not be placed on frozen or saturated base material.

3. Cold weather: Bituminous concrete paving materials shall be mixed and placed in accordance with minimum placement temperature as specified in Article 4.06.03, Item 8 - Placing of Mixture, Form 816.

4. Precipitation or Moisture: Placement of bituminous concrete paving materials shall not be scheduled when weather conditions of fog or rain prevail nor when the pavement surface shows signs of any moisture.

5. Precipitation Probability: Placement of bituminous concrete paving materials shall not be scheduled when the Precipitation Probability, obtained by the Contractor from the U.S. Weather Bureau Within three (3) hours prior to the start of such operations, equals or exceeds fifty (50) percent. The Contractor shall notify the Engineer of the exact time at which the above information was obtained.

B. Grade Control: Establish and maintain the required lines and grades for each course during paving operations.

C. Provide temporary barricades and warning lights as required for protection of project work and pubic safety.

D. Protect adjacent work from damage, soiling and staining during paving operations.

E. Inspection Costs: All costs associated with material certifications, plant inspection and laboratory tests shall be borne by the Contractor and shall be deemed included in the price bid for asphalt pavement.

PART 2 PRODUCTS

2.1 BITUMINOUS CONCRETE PAVEMENT

A. Conform to the requirements of Article M.04.01 and M.04.02, Form 816, Class 1 or 2 as indicated on the Plans.

2.2 TACK COAT

A. Conform to the requirements of Article M.04.01, Sub-item (4), Item (c), Form 816. Tack Coat shall be Grade CRS-1 unless otherwise approved by the Engineer.

2.3 PROCESSED STONE AGGREGATE BASE

A. Conform to the requirements of Article M.05.01, Form 816.

B. Existing bituminous concrete may be used as base material if suitably pulverized in accordance with Form 816 requirements and these Specifications.

2.4 PAINT

A. Paint shall be hot-applied, fast drying type in accordance with Form 816, Section M.07.21.

PART 3 EXECUTION

3.1 INSPECTION

A. Verify that all existing utility openings, valves, and other project installations are at their proper finished grade elevations, within areas to be paved. Provide temporary closures and protection over openings until completion of rolling operations. Remove closures at completion of the work. Set covers to grade, flush with the surface of the adjoining pavement.

3.2 SUBGRADE PREPARATION

A. Prior to placing the bottom course of processed stone aggregate base, the prepared subgrade shall be maintained true to line and grade, at all times for a minimum distance of 200 feet in advance of the work. No placement of the processed aggregate is to commence until acceptance by the Engineer of the subgrade on which it is to be placed.

B. The formation and protection of subgrade shall conform to the requirements of Article 2.09.01 and 2.09.03, Form 816.

3.3 BASE COURSE MATERIAL PLACEMENT/COMPACTION

A. Install processed aggregate base material at the locations as shown on the Drawings and in accordance with Article 3.04.03, Conn DOT Form 816. Dimensions specified are after compaction.

B. Compact base material with vibratory roller to minimum 95% modified AASHTO laboratory density (ASTM D-1557, Method C).

C. Insure thorough and proper compaction around all yard drains, catch basins, structures, utility valves, and other improvements that project above base material.

3.4 BITUMINOUS CONCRETE PAVEMENT

A. General

1. Install the bituminous concrete pavement to the lines, grades, and details shown on the Drawings. Neatly and cleanly meet and match abutting pavements. Remove all soft or yielding material below grade and replace with suitable material.

2. Thicknesses after compaction shall conform to the details on the Drawings. The pavement shall consist of the number of courses and thickness as detailed. Remove and replace areas showing deficiencies in required thickness with new material as directed by the Engineer.

3. Protect existing abutting pavement during paving operations. Replace any abutting pavement damaged during paving operations. Joint between bituminous pavement and existing Portland cement concrete pavement shall be tightly compacted and pavement edge shall be of equal density to other areas of pavement.

4. Provide a cross-pitch of 1/4" per foot for proper drainage. Ensure that there are no “low” spots that may trap water and create a slipping hazard.

B. Forms

1. Provide wood edge forms of an approved type and a minimum length of ten (10) feet for tangents and curves, unless otherwise shown on the plans. Wood forms shall be of a depth equal to the depth of the pavement and shall be securely staked and braced to the required line and grade. Note: Hand tamp edges and bevel if wood forms are not used.

2. Install wood forms along all edges of pavement to produce a clean vertical edge. Secure strips to allow for proper compaction of bituminous concrete. Do not remove edge screed strips until pavement is thoroughly compacted. Raveled edges will not be accepted. Wood forms are to be removed after the bituminous pavement has completely set.

3. All forms shall be straight, free from bends and warps at all times, and shall be cleaned thoroughly and oiled before pavement is placed against them, this cleaning and oiling being repeated daily as the forms are moved ahead.

4. The forms shall rest firmly upon the thoroughly compacted sub-grade throughout their entire length, shall be joined neatly and tightly and staked securely to line and grade, three (3) bracing pins or stakes, each ten (10) foot length of side form, so that they will resist the pressure of the pavement and the impact of the roller without springing.

C. Placing

1. Bituminous concrete pavement shall be constructed and compacted in conformance with Conn DOT Form 816 requirements.

2. Coat the edge of all abutting pavement with tack coat before installing bituminous concrete pavements. Insure that the abutting pavement has a sound, clean, straight

edge. Feathering of edges and transitions between new and existing pavements is not acceptable. Protect surfaces of abutting pavement from tack coat overspray.

3. Each mixture shall be furnished and laid by means of a mechanical spreader of approved design to a depth, which after final compaction shall be equal to the specified depth. In areas where the use of a mechanical spreader is impractical, as determined by the Engineer, other means of spreading and compacting may be permitted. The use of hand rakes will not be permitted. The Contractor shall use lutes where necessary.

4. After placing and compacting binder course, tack coat shall be applied prior to placement of the wearing (top) course.

5. Each mixture shall be laid only where the surface to be covered is free from loose or foreign material, dry, and only when weather conditions, in the opinion of the Engineer, are suitable.

6. The Contractor shall provide suitable means for keeping all small tools clean and free from bituminous accumulations.

7. Pavement may be laid by hand with the approval of the Engineer. Pavement shall be compacted by making multiple passes with a roller weighing not less than 2,000 pounds. After compaction, the thickness shall be that as specified on the drawings.

D. Compacting

1. Upon completion of the spreading of each mixture, the material shall be consolidated thoroughly and uniformly with self-propelled tandem rollers. The top course shall be free from roller marks.

2. Rollers used for compacting the top course shall be well balanced, self-propelled, tandem rollers, weighing between seven (7) and eight (8) tons. The roller shall have a compression under the rear wheel of between 200 and 300 pounds per linear inch of roll at a rate not exceeding 800 square yards per hour per roller. After compaction, the surface course shall have a density not less than 97% theoretical maximum density as determined by Appendix B of The Asphalt Institute Manual MS-2.

3. Locations inaccessible to the roller, the compression shall be effected with iron tampers weighing not less than twenty-five (25) pounds and having a bearing area not exceeding forty-eight (48) square inches, or other impact type equipment.

4. Perform breakdown, second and finish rolling until the bituminous concrete mixture has been compacted to the required surface density and smoothness.

Continue rolling until all roller marks are eliminated. Provide a smooth compacted surface true to thickness and elevations required.

5. After final rolling, do not permit vehicular traffic on the pavement until it has cooled and hardened, and in no case sooner than 8 hours.

E. Joints for New Construction and Between Existing Pavement:

1. Carefully make joints between old and new pavements, and between successive day's work, to ensure a continuous bond between adjoining work. Construct joints to have the same texture, density, and smoothness as other sections of the asphalt concrete course.

2. Construction shall be as nearly continuous as is possible. The roller shall pass over the end of the laid mixture only when a practical necessity.

3. When the operation of laying is interrupted, the end of the laid material shall be left unrolled until such time as work is resumed, in order that there be no joints throughout the project.

4. If it is necessary to roll the end of the laid mixture during construction, thus consolidating it, the joint so made shall be cut back before recommencing the operation of laying, in order to present a fresh, clean surface for contact with the newly placed material.

5. The edges of such joints shall be painted with liquid asphalt (RC-70 or MC-70) and the use of hot smoothing irons in finishing such joints, shall not be permitted.

F. Finished Surface

1. The surface of the top course of the pavement after compression shall be smooth and true to crown and grade, free from depressions, waves, bunches, overlapping seams and unevenness in surface. All new surfaces shall meet existing surfaces smoothly and evenly.

2. After the compaction of the top course, the Contractor shall check the entire paved area for depressions, using a ten (10) foot wood or metal straightedge. Any depressions greater than one-quarter (1/4) of an inch shall be corrected by removing the top course of the affected areas and replacing with new material to form a true and even surface.

G. Defects: Where defects in composition, compression or finish appear in the completed work, such finished areas shall be removed to the full depth of the course and the defective material replaced with the required thickness of pavement at the expense of the contractor.

1. Patching: Remove and replace mixtures that become mixed with foreign materials and all defective areas. Cut out such areas and fill with fresh hot asphalt concrete. Compact by rolling to the required surface density and smoothness. Remove deficient areas for the full depth of the course. Cut sides perpendicular and parallel to the directions of traffic with edges vertical. Apply a tack coat before placing asphalt concrete mixture.

3.5 PAINTED PAVEMENT MARKINGS FOR ROADWAYS AND PARKING LOTS

A. Pavement areas to be painted shall be dry and sufficiently cleaned of sand, dust and road debris so as to provide an acceptable bond between the paint and the pavement.

B. Fast drying paint shall be applied at a temperature of 120 F to 150 F at the spray gun.

C. All paint shall be performed in a neat and workmanlike manner, using approved mechanical equipment. Lines shall be sharp and clear with no feathered edging or fogging and precautions shall be taken to prevent tracking by tires of the striping equipment. Paint shall be applied as shown on the plans with no unsightly deviations.

D. After application, the paint shall be protected from crossing vehicles for a time at least equivalent to the drying time of the paint.

3.6 PROTECTION/CLEAN-UP

A. Protect all work until acceptance of the project. Replace or repair pavement if damaged prior to acceptance.

B. Clean up all debris from installation procedures, including but not limited to bituminous concrete and base material overflow into/onto areas indicated to be lawn or other surfaces. Remove from site all excess materials, debris and equipment. Contractor shall dispose of debris material legally.

C. Repair damage resulting from paving operation to other areas of the work.

END OF SECTION 321216

SECTION 321313

SITE CONCRETE

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. ”Form 816” shall mean the State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816-2004 or its latest edition and any supplemental specifications.

1.2 SUMMARY

A. This Section includes specifications for cast-in-place concrete.

1.3 RELATED SECTIONS

A. Section 31 20 00 “Earth Moving”

B. Section 33 41 00 “Storm Utility Piping” for pre-cast drainage structures

1.4 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, expansive hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume.

1.5 SUBMITTALS

A. Product Data: For each type of manufactured material and product indicated.

B. Design Mixes: For concrete pavement mix.

C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials. Contractor shall pay for all testing of concrete materials.

D. Material Certificates: Signed by manufacturers certifying that each of the following materials complies with requirements:

1. Cementitious materials and aggregates.
2. Steel reinforcement and reinforcement accessories.
3. Admixtures.
4. Curing compounds.

5. Applied finish materials (i.e., traffic paint).
6. Joint fillers.

1.6 QUALITY ASSURANCE, CAST IN PLACE CONCRETE

A. Materials and methods of construction shall comply with the following standards:

1. American Society for Testing and Materials (ASTM)
2. American Concrete Institute (ACI)
3. State of Connecticut DOT Standard Specifications (DOT Form 816 - 2004)

B. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: Manufacturer of ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.

1. Manufacturer must be certified according to the National Ready Mix Concrete Association's Plant Certification Program.

D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant and each aggregate from one source. Do not change source of brands of cement, aggregate materials, or batching plant during course of work.

E. ACI Publications: Comply with all ACI requirements unless modified by the requirements of the Contract Documents.

1.7 QUALITY ASSURANCE, PRE-CAST CONCRETE

A. Fabricator Qualifications: A firm that complies with the following requirements and is experienced in manufacturing precast structural concrete units similar to those indicated for this Project and with a record of successful in-service performance.

1. Assumes responsibility for engineering precast structural concrete units to comply with performance requirements. This responsibility includes preparation of Shop Drawings by a qualified professional engineer.
2. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of precast structural concrete that are similar to those indicated for this Project in material, design, and extent.
3. Participates in PCI's Plant Certification program and is designated a PCI-certified plant.
4. Source Limitations: Obtain precast concrete light pole foundations through one source from a single manufacturer.

B. Design Standards: Comply with ACI 318 and the design recommendations of PCI MNL 120, "PCI Design Handbook – Precast and Prestressed Concrete."

C. Product Options: Drawings indicate size, profiles, and dimensional requirements of precast concrete units and are based on the specific types of units indicated. Other fabricators' precast concrete units complying with requirements may be considered.

PART 2 – PRODUCTS

2.1 FORMS

A. Conform to Article 8.11.03-3 and 9.21.03-3 of ConnDOT Form 816, latest revision.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS:

A. Reinforcing Bars and Tie Bars: ASTM A 615, Grade 60, deformed.

B. Plain, Cold-Drawn Steel Wire: ASTM A 82.

C. Steel Welded Wire Fabric: ASTM A 185.

D. Joint Dowel Bars: Plain steel bars, ASTM A 615, Grade 60. Cut bars true to length with ends square and free of burrs.

E. Supports for Reinforcement: Chairs, spacers, dowel bar supports and other devices for spacing, supporting, and fastening reinforcing bars, welded wire fabric, and dowels in place. Use wire bar-type supports complying with CRSI specifications.

1. Use supports with sand plates or horizontal runners where base material will not support chair leg.

F. Bending: All reinforcement shall be bent cold. Only competent mechanics shall be employed for cutting and bending, and proper appliances shall be provided for such work. The reinforcement shall be bent to the shapes shown on the plans. Bends for stirrups and ties shall be made around a pin having a diameter not less than two times the minimum thickness of the bar. Bends for other bars shall be made around a pin having a diameter not less than six times the minimum thickness of the bar, except that for bar larger than one inch the pin shall not be less than eight times the minimum thickness of the bar. Reinforcement shall be formed to the dimensions indicated on the plans before it is embedded in the concrete.

G. Splices: All Splicing shall be as specified in American Concrete Institute (ACI) Building Code.

H. Placing and Fastening: Placing and Fastening shall be as specified in ACI Standards. Before any concrete is placed, all mortar shall be cleaned from the reinforcement. No concrete shall be poured until the Engineer has inspected the placing of the reinforcing metal and permission to place concrete is granted. All concrete placed in violation of this provision shall be rejected and removed.

2.3 CONCRETE MATERIALS

A. General: Use the same brand and type of cementitious material from the same manufacturer throughout the Project.

B. Concrete: Conform to the requirements of Form 816-2004, Article M.03.01, Class “A” “C” or “F” as noted on the Plans and ASTM C-94. Batch mixing at project site IS not acceptable.

C. Compressive strength: Min. 3,000 psi at 28 days unless otherwise noted on the Plans.

D. Entrained air: 5 to 7%.

E. Reactive aggregates and calcium chloride are not allowed.

F. Water: Potable.

2.4 ADMIXTURES

A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cement and to be compatible with other admixtures.

B. Air-Entraining Admixture: ASTM C 260.

C. Water-Reducing Admixture: ASTM C 494, Type A.

D. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.

2.5 CURING MATERIALS

A. Conform to Article 4.01.03, Item F7 “Curing”, Form 816-2004.

2.6 CONCRETE MIXING

A. Ready-Mixed Concrete: Comply with requirements and with ASTM C 94 and ASTM C 1116.

1. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

2.7 CONCRETE MIX

A. Prepare design mixes for each type and strength of normal-weight concrete by either

laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use a qualified independent testing agency for preparing and reporting proposed mix designs.

B. Proportion mixes to provide normal-weight concrete with the following properties:

1. Compressive Strength (28-Day): Min. 3000 psi or as shown on Plans.
2. Slump Limit at Point of Placement: 2 to 4 inches.
3. Air Entrainment of Between 4-6%. Air entrainment agent shall conform to ASTM C260.

C. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.

2.8 EXPANSIONS JOINTS

A. Premolded joint filler: ASTM D-994, premolded, resilient, non-extruding, joint filler, as distributed by A. H. Harris, New Britain, CT or approved equal.

1. Expansion joint filler shall be preformed bituminous cellular type conforming to the requirements of ASHTO M213.
2. Thickness: as indicated on the drawings.
3. Depth: to match concrete section

B. Joint Sealer (for non-colored concrete): Two component polyurethane elastomeric type complying with FS-TT-S-00227, self-leveling, designed for foot traffic, as manufactured by SIKA, Pecora, or approved equal.

1. Color to match finished/cured concrete. Final color to be approved by Owner.
2. Provide backer rod and primer per manufacturer recommendation.

2.9 RELATED MATERIALS

A. Epoxy Adhesive: ASTM C 881, two-component material suitable for dry or damp surfaces. Provide material type, grade, and class to suit requirements.

B. Products: Subject to compliance with requirements, provide one of the following:

1. Epoxy Adhesive:
   a. Burke Epoxy M.V.; The Burke Co.
   b. Resi-Bond (J-58); Dayton Superior.
   c. Euco Epoxy System #452 or #620; Euclid Chemical Co.
   d. Concresive Standard Liquid; Master Builders, Inc.
   e. Rezi-Weld 1000; W.R. Meadows, Inc.

f. Sikadur 32 Hi-Mod; Sika Corp.

g. R-600 Series; Symons Corp.

PART 3 – EXECUTION

3.1 SURFACE PREPARATION

A. Proof-roll prepared sub base surface to check for unstable areas and verify need for additional compaction. Do not begin concrete work until such conditions have been corrected and are ready to receive concrete.

B. Remove loose material from compacted sub base surface and excavations immediately before placing concrete. Comply with Section 312000 “Earth Moving” for construction of base and sub base material.

3.2 FORMS

A. Set, brace, and secure forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so that forms can remain in place at least 72 hours after concrete placement.

B. Check completed formwork and screeds for grade and alignment to following tolerances:

1. Top of Forms: Not more than 1/8 inch in 10 feet.

2. Vertical Face on Longitudinal Axis: Not more than ¼ inch in 10 feet.

C. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

D. Form recess to receive brick facing masonry in exposed ramp wall as detailed in the Drawings.

3.3 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute’s recommended practice for “Placing Reinforcing Bars” for placing and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.4 JOINTS

A. General: Construct contraction, construction, and isolation joints true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to the centerline, unless indicated otherwise.

1. When joining existing paving, place transverse joints to align with previously placed joints, unless indicated otherwise.

B. Contraction Joints: Provide weakened-plane contraction joints, sectioning concrete into areas as shown on Drawings. Construct contraction joints for a depth equal to at least ¼ of the concrete thickness, as follows:

1. Tooled Joints: Form contraction joints in fresh concrete by grooving and finishing each edge of joint with a radiused jointer tool.
2. Inserts: Form contraction joints by inserting pre-molded plastic, hardboard, or fiberboard strips into fresh concrete until top surface of strip is flush with paving surface. Radius each joint edge with a jointer tool. Carefully remove strips or caps of two-piece assemblies after concrete has hardened. Clean groove of loose debris.

C. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than 2 hour, unless paving terminates at isolation joints.

1. Provide preformed galvanized steel or plastic keyway-section forms or bulkhead forms with keys, unless indicated otherwise. Embed keys at least 1-1/2 inches into concrete.
2. Continue reinforcement across construction joints unless indicated otherwise. Do not continue reinforcement through sides of strip paving unless indicated.
3. Provide tie bars at sides of paving strips where indicated.
4. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

D. Isolation Joints: Form isolation joints of preformed joint filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.

1. Locate expansion joints at intervals of 20 feet, unless indicated otherwise.
2. Extend joint fillers full width and depth of joint, not less than 2 inch or more than 1 inch below finished surface where joint sealant is indicated. Place top of joint filler flush with finished concrete surface when no joint sealant is required.
3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.
4. Protect top edge of joint filler during concrete placement with a metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

E. Installation of joint fillers and sealants shall conform applicable sections of Form 816.

F. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat one half of dowel length to prevent concrete bonding to one side of joint.

3.5 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from sub base surface and reinforcing before placing concrete. Do not place concrete on surfaces that are frozen.

C. Moisten sub base to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

D. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.

1. When concrete placing is interrupted for more than 2 hour, place a construction joint.

E. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

F. Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures to consolidate concrete complying with ACI 309R.

1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with care to prevent dislocating reinforcing, dowels, and joint devices.

G. Screed paved surfaces with a straightedge and strike off. Use bull floats or darbies to form a smooth surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces prior to beginning finishing operations.

H. Place concrete in two operations; strike off initial pour for entire width of placement and to the required depth below finish surface. Lay welded wire fabric or fabricated bar mats immediately in final position. Place top layer of concrete, strike off, and screed.

1. Remove and replace portions of bottom layer of concrete that have been placed more than 15 minutes without being covered by top layer or use bonding agent if acceptable to Engineer.

I. Curbs and Gutters: Produce curbs and gutters to required cross section, lines, grades, finish, and jointing as specified for formed concrete.

J. Cold-Weather Placement: Comply with provisions of ACI 306R and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.

K. Hot-Weather Placement: Place concrete complying with ACI 305R and as specified when hot weather conditions exist.

1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F. Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
3. Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.6 CONCRETE FINISHING

A. Float Finish: Begin floating when bleed water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Finish surfaces to true planes within a tolerance of ¼ inch in 10 feet as determined by a 10-foot-long straightedge placed anywhere on the surface in any direction. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular texture.

1. Medium-to-Fine-Textured Broom Finish: Draw a soft bristle broom across concrete sidewalk surface perpendicular to line of traffic to provide a uniform fine line texture finish.

B. Final Tooling: Radius: 3/8 inch. Tool edges of paving, curbs, and joints formed in fresh concrete with a jointing tool to the following radius. Repeat tooling of edges and joints after applying surface finishes. Eliminate tool marks on concrete surfaces.

C. Rubbed Finish: Conform to Form 816, Section 6.01.03.

3.7 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with the recommendations of ACI 306R for cold weather protection and ACI 305R for hot weather protection during curing.

B. Evaporation Control: In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before floating.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

D. Curing Methods: Cure concrete by curing compound, as follows:

1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.8 FIELD QUALITY CONTROL TESTING

A. Employ a qualified independent testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement as directed.

B. The Contractor will employ a qualified testing and inspection agency to sample materials, perform tests, and submit test reports during concrete placement.

C. Sampling and testing for quality control may include the following:

1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
   a. Slump: ASTM C 143; one test at point of placement for each compressive-strength test but no less than one test for each day's pour of each type of concrete. Additional tests will be required when concrete consistency changes.
   b. Air Content: ASTM C 231, pressure method; one test for each compressive-strength test but no less than one test for each day's pour of each type of air-entrained concrete.
   c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
   d. Compression Test Specimens: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless directed otherwise. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
   e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour of each concrete class exceeding 5 cu. yd. but less than 25 cu. yd., plus one set for each additional 50 cu. yd. Test one specimen at 7 days, test two specimens at 28 days, and retain one specimen in reserve for later testing if required.
2. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each batch if fewer than five are used.
3. When total quantity of a given class of concrete is less than 50 cu. yd., the Engineer may waive strength testing if adequate evidence of satisfactory strength is provided.
4. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

5. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi.

D. Test results will be reported in writing to the Engineer, concrete manufacturer, and Contractor within 24 hours of testing. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing agency, concrete type and class, location of concrete batch in paving, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day and 28-day tests.

3.9 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective, or does not meet the requirements of this Section.

B. Drill test cores where directed by the Engineer when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with Portland cement concrete bonded to paving with epoxy adhesive.

C. Protect concrete from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep concrete paving not more than 2 days prior to date scheduled for Substantial Completion inspections.

3.10 PROTECTION/CLEAN-UP

A. Protect work completed until acceptance of project. Replace or repair concrete if damaged prior to acceptance. As work proceeds, maintain premises free of unnecessary accumulation of tools, equipment, surplus materials and debris related to this work.

END OF SECTION 321313

SECTION 334100

STORM AND SANITARY UTILITY PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Form 816 shall mean the State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816-2004 or its latest edition and any supplemental specifications.

1.2 SUMMARY

A. This Section includes gravity drainage and sanitary sewerage construction including piping, precast concrete catch basins, manholes and other related structures.

B. Related Sections include the following:

1. Section 31 20 00 – “Earth Moving”

2. Section 32 13 13 – “Site Concrete” for cast-in-place concrete structures

1.3 SUBMITTALS

A. Shop Drawings: Include plans, elevations, details, and attachments for the following:

1. Storm Piping, fittings and other related items.

2. Precast and Cast-in-place concrete manholes and other structures, including frames, covers, and grates.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic structures, pipe, and fittings in direct sunlight.

B. Protect pipe, pipe fittings, and seals from dirt and damage.

C. Handle precast concrete manholes and other structures according to manufacturer's written rigging instructions.

PART 2 - PRODUCTS

2.1 PIPING

A. Polyethylene (PE) Pipe: Double-walled (corrugated exterior with smooth-lined interior) high-density polyethylene pipe, type N-12 as manufactured by Advanced Drainage Systems, Inc (ADS) or equal. Pipe coupler connections shall be watertight type "Pro-Link WT" by ADS.

B. Polyvinyl Chloride (PVC) Pipe:

1. Schedule 40 or 80 conforming to ASTM D2241 within building areas.
2. SDR 35 conforming to ASTM D3034 for gravity sewer applications. All sanitary sewer piping shall have rubber gasket push-on type joints.

C. Reinforced Concrete Pipe (RCP): All 12” and 15” RCP shall be Class V, conforming to ASTM C-76. All other RCP storm drain pipe shall be Class IV conforming to ASTM C-76, unless otherwise noted on the Plans.

2.2 MANHOLES

A. Precast Concrete Manholes:

1. Precast Units shall conform to Form 816, Article M.08.02, 4- Precast Units for Drainage Structures and ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for rubber gasketed joints.

2. Diameter: 48 inches minimum, unless otherwise indicated.

3. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.

4. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor.

5. Riser Sections: 4-inch minimum thickness, and lengths to provide depth indicated.

6. Top Section: Eccentric-cone type, unless concentric-cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.

7. Gaskets: ASTM C 443, rubber.

8. Grade Rings: Include two or three reinforced-concrete rings, of 6- to 9-inch total thickness, that match 24-inch diameter frame and cover.

B. Manhole Frames and Covers:

1. Frames and Grates shall conform to 816, Article M.08.02, 5- Metal for Drainage Structures.

2. Storm Drains: ASTM A 536, Grade 60-40-18, ductile-iron castings designed for heavy-duty service. Include 24-inch ID by 7 to 9-inch riser with 4-inch minimum width flange, and 26-inch diameter cover. Include indented top design with lettering "STORM DRAIN" cast into cover.

3. Sanitary Sewers: Conform to City or Town standards.

C. Manhole Steps:

1. Steps shall be fiberglass, individual steps or ladder. Include width that allows worker to place both feet on one step and is designed to prevent lateral slippage off step. Cast or anchor into base, riser, and top section sidewalls with steps at 12- to 16-inch intervals. Omit steps for manholes less than 60 inches deep.

2.3 CATCH BASINS

A. Precast Concrete Catch Basins:

1. Precast Units shall conform to Form 816, Article M.08.02, 4- Precast Units for Drainage Structures and ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for rubber gasketed joints.

2. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section, and having separate base slab or base section with integral floor.

B. Masonry Catch Basins:

1. Masonry Units shall conform to Form 816, Article M.08.02, 1- Brick or 2- Concrete Building Brick or 3- Masonry Concrete Units for Catch Basins, Manholes or Drop Inlets.

2. Mortar shall conform to Form 816, Article M.11.04.

C. Catch Basin Frames and Grates:

1. Frames and Grates shall conform to 816, Article M.08.02, 5- Metal for Drainage Structures.

2.4 CONCRETE FOR CAST-IN-PLACE STRUCTURES

A. General: Cast-in-place concrete according to ACI 318, ACI 350R, and the following:

1. Cement: ASTM C 150, Type II.

2. Fine Aggregate: ASTM C 33, sand.

3. Coarse Aggregate: ASTM C 33, crushed gravel.

4. Water: Potable.

B. Portland Cement Design Mix: 4000 psi (27.6 MPa) minimum, with 0.45 maximum water-cementitious ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.

2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed steel.

C. Ballast and Pipe Supports: Portland cement design mix, 3000 psi (20.7 MPa) minimum, with 0.58 maximum water-cementitious ratio.

1. Reinforcement Fabric: ASTM A 185, steel, welded wire fabric, plain.

2. Reinforcement Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed steel.

PART 3 - EXECUTION

3.1 TRENCHING

A. Excavating, trenching, bedding material and backfilling are specified in Section 312000 "Earth Moving."

3.2 INSTALLATION, GENERAL

A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take design considerations into account. Install piping as indicated, to extent practical.

B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line, and pull past each joint as it is completed.

C. Use manholes for changes in direction, unless fittings are indicated. Use fittings for branch connections, unless direct tap into existing sewer is indicated.

D. Use proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.

E. Install gravity-flow piping and connect to existing drains and structures, of sizes and in locations indicated. Terminate piping as indicated.

1. Install piping pitched down in direction of flow, at minimum slope of 1/2 of 1 percent, unless otherwise indicated.

2. Install piping with 24-inch minimum cover.

F. Join piping made of different materials or dimensions with couplings made for this application. Use couplings that are compatible with and that fit both systems' materials and dimensions.

3.3 MANHOLE INSTALLATION

A. General: Install manholes, complete with appurtenances and accessories indicated.

B. Set tops of frames and covers flush with finished surface of manholes that occur in pavements. Set tops 1 inch above finished surface elsewhere, unless otherwise indicated.

C. Construct cast-in-place manholes as indicated.

3.4 CATCH-BASIN INSTALLATION

A. Construct catch basins to sizes and shapes indicated.

B. Set frames and grates to elevations indicated.

3.5 CLOSING ABANDONED STORM DRAINAGE SYSTEMS

A. Abandoned Piping: Close open ends of abandoned underground piping indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth

pressures that may result after ends of abandoned piping have been closed. Use either procedure below:

1. Close open ends of concrete piping with at least 8-inch thick, brick masonry bulkheads.

2. Close open ends of other piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

B. Existing Structures to be Abandoned: Excavate around structure as required and use one of the procedures below:

1. Remove structure and close open ends of remaining piping with 8” brick and mortar.

2. Remove top of structure down to at least 36 inches below final grade. Fill to within 12 inches of top with stone, rubble, gravel, or compacted dirt. Fill to top with concrete.

3. Backfill to grade according to Section 31 20 00 "Earth Moving."

3.6 FIELD QUALITY CONTROL

A. Clear interior of piping and structures of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed.

1. In large, accessible piping, brushes and brooms may be used for cleaning.

2. Place plug in end of incomplete piping at end of day and when work stops.

3. Flush piping between manholes and other structures to remove collected debris, if required by authorities having jurisdiction.

B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.

END OF SECTION 334100

REPAIRS AND IMPROVEMENTS

AT THE

MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

FEBRUARY 8, 2021

OWNER: CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR: DESMAN
175 CAPITAL BOULEVARD, SUITE 402
ROCKY HILL, CT 06067

CIVIL ENGINEER: CABEZA DEANGELIS
78 ELM STREET
BRIDGEPORT, CT 06604

ELECTRICAL ENGINEERS: SILVER/PETRUCELLI & ASSOCIATES
3190 WHITNEY AVENUE
HAMDEN, CONNECTICUT 06518-2340

DRAWING INDEX

CS-0 TITLE SHEET

BOUNDARY AND TOPOGRAPHIC SURVEY, prepared by CLA Engineers,inc

C-1 EXISTING CONDITIONS, DEMOLITION AND SOIL EROSION & SED. CONTROL
C-2 SITE PLAN
C-3 GRADING & DRAINAGE PLAN
C-4 SITE SECTIONS
C-5 TYPICAL SITE DETAILS
C-6 TYPICAL DRAINAGE DETAILS
C-7 SOIL EROSION & SED. CONTROL DETAILS & NOTES
C-8 CITY OF NEW LONDON TYPICAL DETAILS

~~L-1 PLANTING PLAN~~ N.I.C. 2

ED101 ELECTRICAL SITE DEMOLITION PLAN
ES101 ELECTRICAL SITE NEW WORK PLAN
ES102 ELECTRICAL SITE DETAILS
PH101 PHOTOMETRIC PLAN

E200 ELECTRICAL NOTES, SYMBOLS AND SCHEDULES
E201 ELECTRIAL POWER RISER DIAGRAM

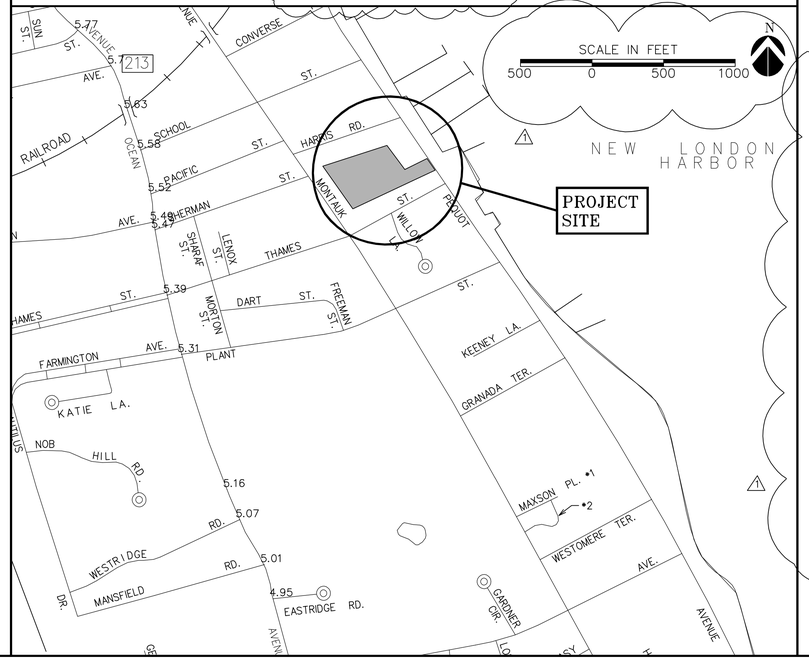
APPROVED BY THE CITY OF NEW LONDON
PLANNING & ZONING COMMISSION

CHAIRPERSON _____ DATE _____

SCOPE OF WORK

1. General Mobilization/Demobilization and Coordination.
2. Site Preparation, removal and disposal of designated and related materials, placement of islands and curbing, placement of pavement, other related site materials, along with all other work required for the satisfactory performance of this work item.
3. Installation of catch basins, drainage structures, piping, other related drainage materials, along with all other work required for the satisfactory performance of this work item.
4. Installation of lighting, electrical infrastructure and related materials, along with all other work required for the satisfactory performance of this work item.
5. Installation of landscaping, fencing related site materials, along with all other work required for the satisfactory performance of this work item.
6. Installation of striping, related traffic markings and signage, along with all other work required for the satisfactory performance of this work item.
7. Miscellaneous coordination and/or items of work not otherwise noted but depicted on/in the Drawings or Specifications.

LOCATION MAP



GENERAL NOTES

THE FOLLOWING NOTES SHALL APPLY UNLESS NOTED OTHERWISE ON PLANS OR SPECIFICATIONS:

1. ALL DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITIONS OF THE APPLICABLE LOCAL AND STATE BUILDING CODES.
2. CONTRACTOR IS INSTRUCTED NOT TO SCALE DRAWINGS.
3. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CONDITIONS AND DIMENSIONS SHOWN ON THE DRAWINGS WITH EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
4. CONTRACTOR SHALL REPORT IMMEDIATELY TO THE ENGINEER ANY DISCREPANCIES OR INCORRECT INFORMATION WITH RESPECT TO THE DRAWINGS BASED ON EXISTING CONDITIONS. AFTER REPORTING THESE DISCREPANCIES VERBALLY THE CONTRACTOR SHALL SUBMIT A WRITTEN REPORT (WITH DRAWINGS/SKECTHES, AS REQUIRED) IMMEDIATELY FOR THE ENGINEERS REVIEW. CONTRACTOR SHALL BE DIRECTED BY THE ENGINEER REGARDING THE CHANGES, AND FURTHER ACTION IF AND AS REQUIRED.
5. THE CONTRACTOR SHALL PROVIDE AND IMPLEMENT ALL NECESSARY STAGING PLANS SHOWING METHODS AND EQUIPMENT FOR PROTECTING THE GENERAL PUBLIC, ADJACENT PROPERTIES, EQUIPMENT, MATERIALS AND PERSONNEL FROM FIRE AND OTHER DAMAGES. THESE MEASURES SHALL BE IN PLACE PRIOR TO START OF WORK. METHODS AND EQUIPMENT SHOWN IN THE STAGING PLANS ARE SUBJECT TO APPROVAL BY THE BUILDING DEPARTMENT, FIRE MARSHAL AND/ OR OTHER APPROPRIATE AGENCIES HAVING JURISDICTION PRIOR TO ISSUANCE OF THE BUILDING PERMIT. FIRE PROTECTION AND PREVENTION DURING THE CONSTRUCTION PERIOD SHALL BE IN ACCORDANCE WITH ALL LAWS AND REGULATIONS INCLUDING, BUT NOT LIMITED TO, THE LATEST N.F.P.A. REGULATIONS, OSHA REGULATIONS, OSHA REQUIREMENTS, THE STATE OF CONNECTICUT AND THE CITY OF NEW LONDON REGULATIONS AND ORDINANCES.
6. THE CONTRACTOR SHALL COMPLY WITH ALL SAFETY AND HEALTH LAWS AND REGULATIONS INCLUDING, BUT NOT LIMITED TO, THE PROVISIONS AND REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (AS AMENDED) OR THE CONSTRUCTION SAFETY ACT OF 1969 (AS AMENDED); WHICHEVER IS APPLICABLE. THE CONTRACTOR SHALL COMPLY WITH ALL THE MOST RECENT APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS AND ORDERS OF ANY PUBLIC AUTHORITY HAVING JURISDICTION OVER THE PROJECT IN ORDER TO PROTECT PERSONS AND/ OR PROPERTY FROM DAMAGE, INJURY OR LOSS. THE CONTRACTOR SHALL ERECT AND MAINTAIN, AS REQUIRED BY EXISTING CONDITIONS AND PROGRESS OF THE WORK, ALL REASONABLE SAFEGUARDS FOR SAFETY AND PROTECTION; INCLUDING POSTING DANGER SIGNS AND OTHER WARNINGS AGAINST HAZARDS, PROMULGATING SAFETY REGULATIONS AND NOTIFYING THE OWNER, TENANTS, PATRONS AND USERS OF ADJACENT FACILITIES. THE CONTRACTOR SHALL ALSO ASSURE THAT ALL ITS SUBCONTRACTORS CONFORM TO ALL HEALTH AND SAFETY LAWS AND REGULATIONS.
7. THE CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING AND SHEETING REQUIRED FOR SAFETY AND PROPER EXECUTION OF THE WORK. CONTRACTOR IS RESPONSIBLE FOR PREPARATION OF SHOP DRAWINGS, DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE CONNECTICUT, FOR ANY SPECIALIZED SHORING, ETC. WHICH MAY BE REQUIRED. DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
8. WHEN PLANS AND SPECIFICATIONS INCLUDE INFORMATION PERTAINING TO SURFACE OBSERVATIONS, MATERIAL TESTING AND OTHER PRELIMINARY INVESTIGATIONS, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATIONS, CHARACTER, OR QUANTITY OF THE MATERIALS OR CONDITIONS ENCOUNTERED AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. THE OWNER/ENGINEER ASSUMES NO RESPONSIBILITY WHATSOEVER WITH RESPECT OF THE SUFFICIENCY OR ACCURACY OF THE INFORMATION, AND THERE IS NO GUARANTEE, EITHER EXPRESSED OR IMPLIED, THAT THE CONDITIONS INDICATED ARE REPRESENTATIVE OF THOSE EXISTING THROUGHOUT THE WORK, OR THAT UNANTICIPATED DEVELOPMENTS MAY NOT OCCUR AND/OR EXIST.
9. ANY EXTRA WORK BEYOND THE SCHEDULED QUANTITIES REQUIRING EXTRA COST TO THE OWNER SHALL BE APPROVED BY THE OWNER PRIOR TO COMMENCING SAID WORK. CLAIMS FOR EXTRA WORK WHICH HAVE NOT BEEN AUTHORIZED IN WRITING BY THE OWNER AND APPROVED BY THE ENGINEER WILL BE REJECTED AND THE CONTRACTOR SHALL NOT BE ENTITLED TO PAYMENT.
10. THE CONTRACTOR SHALL REVIEW ALL EXISTING CONDITIONS TO DETERMINE ALL SERVICES WHICH MIGHT BE AFFECTED BY THE WORK. THE CONTRACTOR SHALL MAKE NECESSARY TEMPORARY CONNECTIONS TO MAINTAIN EXISTING SERVICES TO ALL AREAS OF THE FACILITY OR OTHER AREAS NOT IN THE CONTRACT AFFECTED BY THE WORK. UPON COMPLETION OF REPAIRS THE CONTRACTOR SHALL MAKE PERMANENT CONNECTIONS TO ALL SERVICES WHICH HAD BEEN TEMPORARILY MAINTAINED.
11. ANY UTILITY LINES ABANDONED OR NO LONGER IN SERVICE THAT WOULD INTERFERE WITH THE PROJECT SHALL BE IDENTIFIED BY THE CONTRACTOR AND REMOVED FROM THE REPAIR AREAS BY THE CONTRACTOR, UNLESS NOTED OTHERWISE, PRIOR TO START OF WORK.
12. ALL DETAILS, SECTIONS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE, UNLESS OTHERWISE SHOWN.
13. THE CONTRACTOR SHALL PROVIDE THE ENGINEER/OWNER, ZONING OFFICIAL AND CHIEF OF POLICE A COMPREHENSIVE PEDESTRIAN AND VEHICULAR TRAFFIC CONTROL PLAN PRIOR TO STARTING WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AS WELL AS FOR THE PROVISION OF ALL REQUIRED TRAFFIC CONTROL DEVICES, WARNING LIGHTS AND SIGNAGE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AASHTO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. CONTRACTOR SHALL ALSO PROVIDE EXTRA-DUTY POLICE OFFICERS TO DIRECT TRAFFIC AS MAY BE REQUIRED BY OBSTRUCTION PERMITS.
14. THE CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE ON A DAILY BASIS AND PROTECT MATERIALS AND WORK IN PROGRESS FROM VANDALISM.

OWNER:
CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:
DESMAN Design Management

CIVIL ENGINEER:
Cabezas DeAngelis ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:
SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT
PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15
NEW LONDON, CONNECTICUT

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	KDS
1 CITY COMMENTS	3-8-21	KDS

REVISIONS

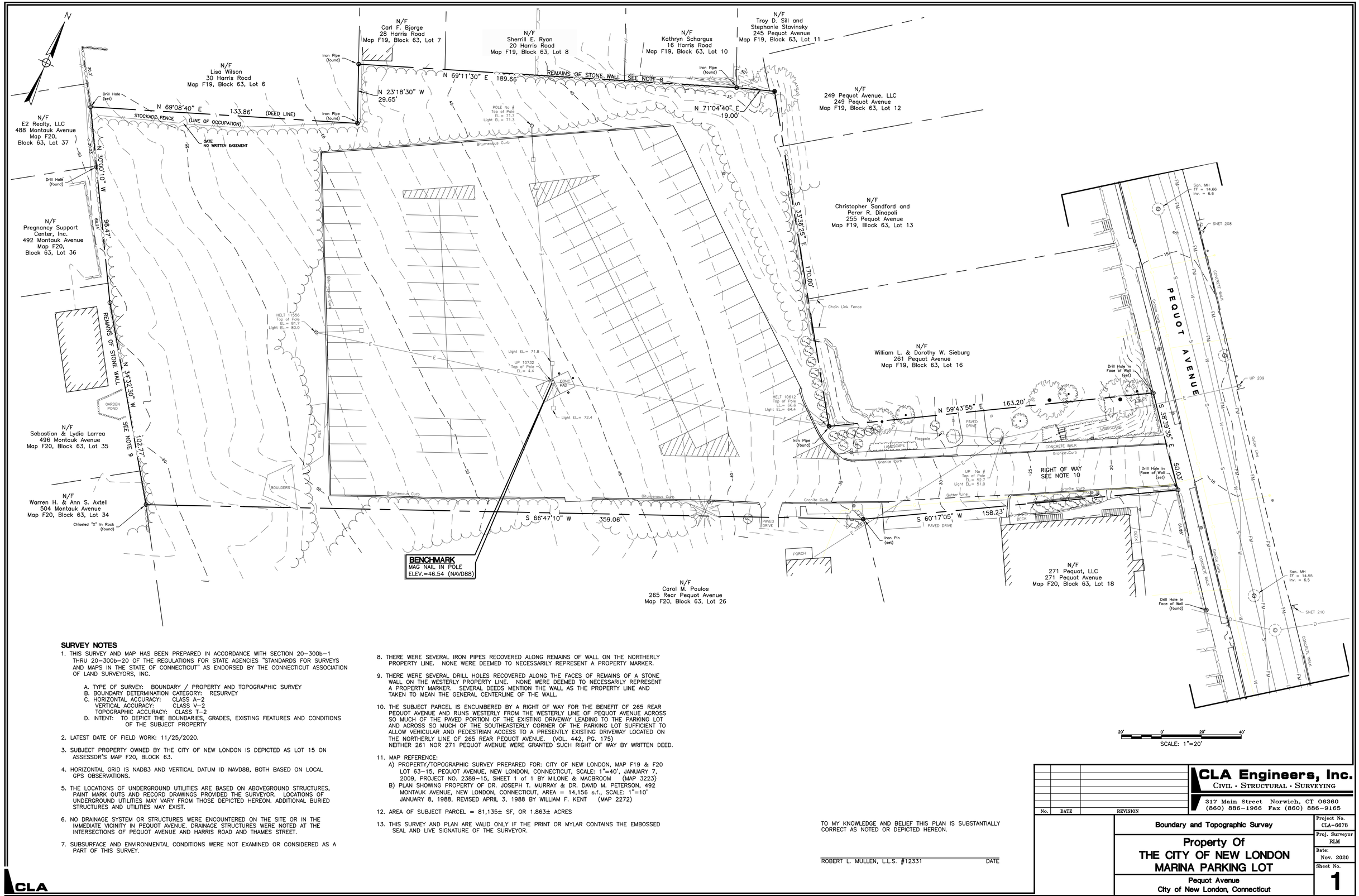
DRAWING TITLE
TITLE SHEET

DRAWING NO.
CS-0

SCALE: AS NOTED
DATE: FEBRUARY 8, 2021
DESMAN PROJECT NO. 20-20170.00-2

DESIGN	DRAWN	CH'KD.
K.D.S.	K.D.S.	K.D.S.

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SURVEY NOTES

1. THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 20–300b–1 THRU 20–300b–20 OF THE REGULATIONS FOR STATE AGENCIES "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC.

   A. TYPE OF SURVEY: BOUNDARY / PROPERTY AND TOPOGRAPHIC SURVEY
   B. BOUNDARY DETERMINATION CATEGORY: RESURVEY
   C. HORIZONTAL ACCURACY: CLASS A–2
      VERTICAL ACCURACY: CLASS V–2
      TOPOGRAPHIC ACCURACY: CLASS T–2
   D. INTENT: TO DEPICT THE BOUNDARIES, GRADES, EXISTING FEATURES AND CONDITIONS OF THE SUBJECT PROPERTY

2. LATEST DATE OF FIELD WORK: 11/25/2020.

3. SUBJECT PROPERTY OWNED BY THE CITY OF NEW LONDON IS DEPICTED AS LOT 15 ON ASSESSOR'S MAP F20, BLOCK 63.

4. HORIZONTAL GRID IS NAD83 AND VERTICAL DATUM ID NAVD88, BOTH BASED ON LOCAL GPS OBSERVATIONS.

5. THE LOCATIONS OF UNDERGROUND UTILITIES ARE BASED ON ABOVEGROUND STRUCTURES, PAINT MARK OUTS AND RECORD DRAWINGS PROVIDED THE SURVEYOR. LOCATIONS OF UNDERGROUND UTILITIES MAY VARY FROM THOSE DEPICTED HEREON. ADDITIONAL BURIED STRUCTURES AND UTILITIES MAY EXIST.

6. NO DRAINAGE SYSTEM OR STRUCTURES WERE ENCOUNTERED ON THE SITE OR IN THE IMMEDIATE VICINITY IN PEQUOT AVENUE. DRAINAGE STRUCTURES WERE NOTED AT THE INTERSECTIONS OF PEQUOT AVENUE AND HARRIS ROAD AND THAMES STREET.

7. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY.

8. THERE WERE SEVERAL IRON PIPES RECOVERED ALONG REMAINS OF WALL ON THE NORTHERLY PROPERTY LINE. NONE WERE DEEMED TO NECESSARILY REPRESENT A PROPERTY MARKER.

9. THERE WERE SEVERAL DRILL HOLES RECOVERED ALONG THE FACES OF REMAINS OF A STONE WALL ON THE WESTERLY PROPERTY LINE. NONE WERE DEEMED TO NECESSARILY REPRESENT A PROPERTY MARKER. SEVERAL DEEDS MENTION THE WALL AS THE PROPERTY LINE AND TAKEN TO MEAN THE GENERAL CENTERLINE OF THE WALL.

10. THE SUBJECT PARCEL IS ENCUMBERED BY A RIGHT OF WAY FOR THE BENEFIT OF 265 REAR PEQUOT AVENUE AND RUNS WESTERLY FROM THE WESTERLY LINE OF PEQUOT AVENUE ACROSS SO MUCH OF THE PAVED PORTION OF THE EXISTING DRIVEWAY LEADING TO THE PARKING LOT AND ACROSS SO MUCH OF THE SOUTHEASTERLY CORNER OF THE PARKING LOT SUFFICIENT TO ALLOW VEHICULAR AND PEDESTRIAN ACCESS TO A PRESENTLY EXISTING DRIVEWAY LOCATED ON THE NORTHERLY LINE OF 265 REAR PEQUOT AVENUE. (VOL. 442, PG. 175) NEITHER 261 NOR 271 PEQUOT AVENUE WERE GRANTED SUCH RIGHT OF WAY BY WRITTEN DEED.

11. MAP REFERENCE:
    A) PROPERTY/TOPOGRAPHIC SURVEY PREPARED FOR: CITY OF NEW LONDON, MAP F19 & F20 LOT 63–15, PEQUOT AVENUE, NEW LONDON, CONNECTICUT, SCALE: 1"=40', JANUARY 7, 2009, PROJECT NO. 2389–15, SHEET 1 of 1 BY MILONE & MACBROOM (MAP 3223)
    B) PLAN SHOWING PROPERTY OF DR. JOSEPH T. MURRAY & DR. DAVID M. PETERSON, 492 MONTAUK AVENUE, NEW LONDON, CONNECTICUT, AREA = 14,156 s.f., SCALE: 1"=10' JANUARY 8, 1988, REVISED APRIL 3, 1988 BY WILLIAM F. KENT (MAP 2272)

12. AREA OF SUBJECT PARCEL = 81,135± SF, OR 1.863± ACRES

13. THIS SURVEY AND PLAN ARE VALID ONLY IF THE PRINT OR MYLAR CONTAINS THE EMBOSSED SEAL AND LIVE SIGNATURE OF THE SURVEYOR.

TO MY KNOWLEDGE AND BELIEF THIS PLAN IS SUBSTANTIALLY CORRECT AS NOTED OR DEPICTED HEREON.

ROBERT L. MULLEN, L.L.S. #12331 DATE

No.	DATE	REVISION

CLA Engineers, Inc.
CIVIL • STRUCTURAL • SURVEYING
317 Main Street Norwich, CT 06360
(860) 886–1966 Fax (860) 886–9165

Boundary and Topographic Survey

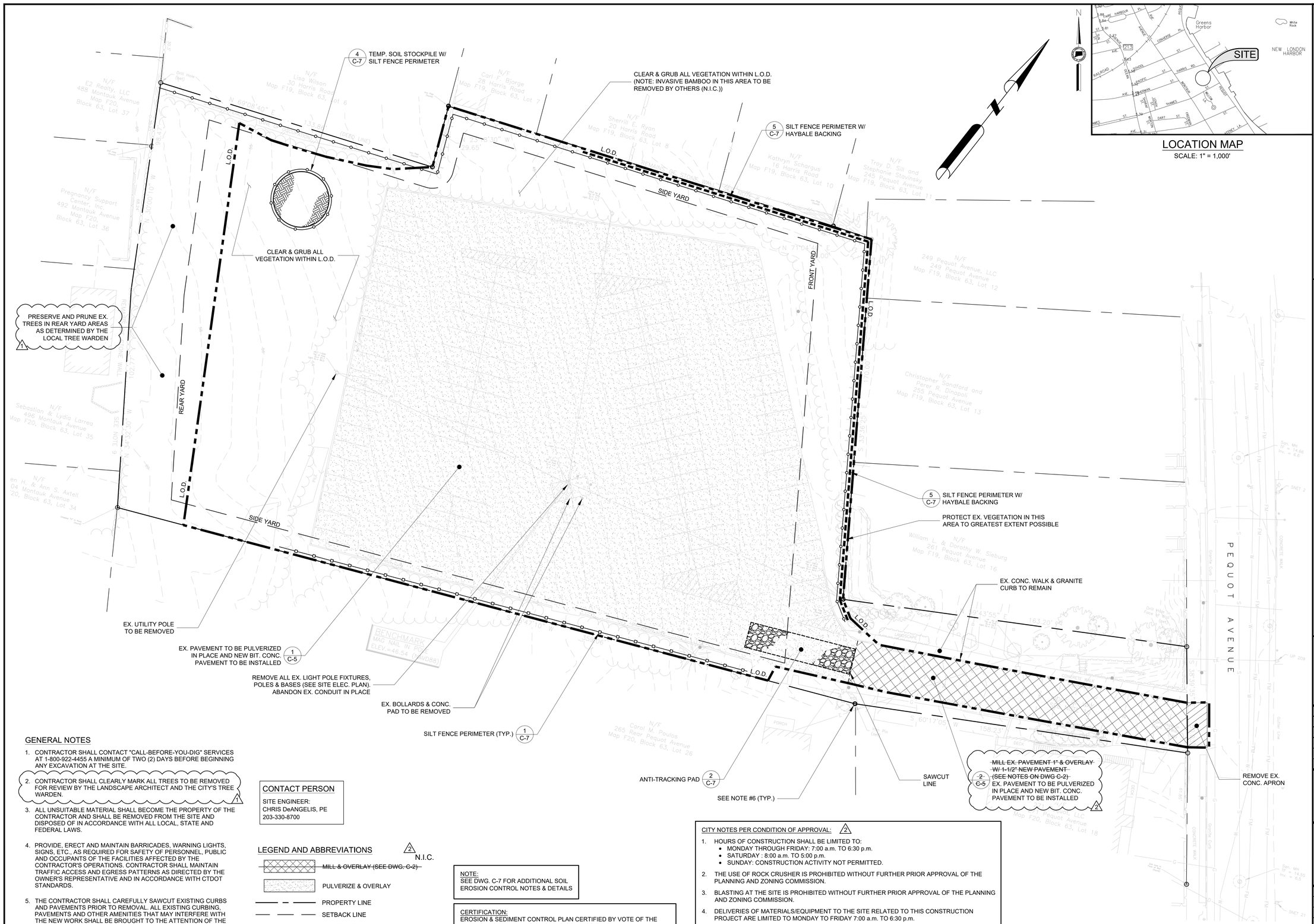
Property Of
THE CITY OF NEW LONDON
MARINA PARKING LOT

Pequot Avenue
City of New London, Connecticut

Project No.	CLA–6678
Proj. Surveyor	RLM
Date:	Nov. 2020
Sheet No.	1

CLA

W:\6000\6600\6678 Marina Lot A-2, T-2\Survey\6678_S.dwg



GENERAL NOTES

1. CONTRACTOR SHALL CONTACT "CALL-BEFORE-YOU-DIG" SERVICES AT 1-800-922-4455 A MINIMUM OF TWO (2) DAYS BEFORE BEGINNING ANY EXCAVATION AT THE SITE.
2. CONTRACTOR SHALL CLEARLY MARK ALL TREES TO BE REMOVED FOR REVIEW BY THE LANDSCAPE ARCHITECT AND THE CITY'S TREE WARDEN. 1
3. ALL UNSUITABLE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.
4. PROVIDE, ERECT AND MAINTAIN BARRICADES, WARNING LIGHTS, SIGNS, ETC., AS REQUIRED FOR SAFETY OF PERSONNEL, PUBLIC AND OCCUPANTS OF THE FACILITIES AFFECTED BY THE CONTRACTOR'S OPERATIONS. CONTRACTOR SHALL MAINTAIN TRAFFIC ACCESS AND EGRESS PATTERNS AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND IN ACCORDANCE WITH CTDOT STANDARDS.
5. THE CONTRACTOR SHALL CAREFULLY SAWCUT EXISTING CURBS AND PAVEMENTS PRIOR TO REMOVAL. ALL EXISTING CURBING, PAVEMENTS AND OTHER AMENITIES THAT MAY INTERFERE WITH THE NEW WORK SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
6. ALL EXISTING SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE IN ACCORDANCE WITH STATE LAWS.

CONTACT PERSON

SITE ENGINEER:
CHRIS DeANGELIS, PE
203-330-8700

LEGEND AND ABBREVIATIONS

2 N.I.C.

- ~~MILL & OVERLAY (SEE DWG. C-2)~~
- PULVERIZE & OVERLAY
- PROPERTY LINE
- SETBACK LINE
- SILT FENCE
- HAYBALE PROTECTION
- L.O.D. LIMITS OF DISTURBANCE/GRADING

NOTE:
SEE DWG. C-7 FOR ADDITIONAL SOIL EROSION CONTROL NOTES & DETAILS

CERTIFICATION:
EROSION & SEDIMENT CONTROL PLAN CERTIFIED BY VOTE OF THE NEW LONDON PLANNING & ZONING COMMISSION ON _____.

BY:_____ DATE:_____
CHAIRMAN

CITY NOTES PER CONDITION OF APPROVAL: 2

1. HOURS OF CONSTRUCTION SHALL BE LIMITED TO:
   - MONDAY THROUGH FRIDAY: 7:00 a.m. TO 6:30 p.m.
   - SATURDAY : 8:00 a.m. TO 5:00 p.m.
   - SUNDAY: CONSTRUCTION ACTIVITY NOT PERMITTED.
2. THE USE OF ROCK CRUSHER IS PROHIBITED WITHOUT FURTHER PRIOR APPROVAL OF THE PLANNING AND ZONING COMMISSION.
3. BLASTING AT THE SITE IS PROHIBITED WITHOUT FURTHER PRIOR APPROVAL OF THE PLANNING AND ZONING COMMISSION.
4. DELIVERIES OF MATERIALS/EQUIPMENT TO THE SITE RELATED TO THIS CONSTRUCTION PROJECT ARE LIMITED TO MONDAY TO FRIDAY 7:00 a.m. TO 6:30 p.m.
5. AS MAY BE DIRECTED BY THE ASSISTANT PLANNER/ZONING OFFICIAL, NECESSARY MEASURES TO CONTROL ANY DUST GENERATED BY FILL BROUGHT INTO THE SITE OR MOVEMENT OF EARTH MATERIAL ON SITE SHALL BE IMPLEMENTED.
6. A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE ASSISTANT PLANNER/ZONING OFFICIAL, THE CONTRACTOR, AND ANY ADDITIONAL PERSONNEL THE APPLICANT AND/OR CITY STAFF DEEM NECESSARY TO BE IN ATTENDANCE.

OWNER:
CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:
DESMAN
Design Management

CIVIL ENGINEER:
Cabezas DeAngelis
ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:
SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

STATE OF CONNECTICUT · CHRISTIAN A. DeANGELIS · #PEN.0028 · REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	ARM
1 CITY COMMENTS	3-8-21	ARM
REVISIONS		

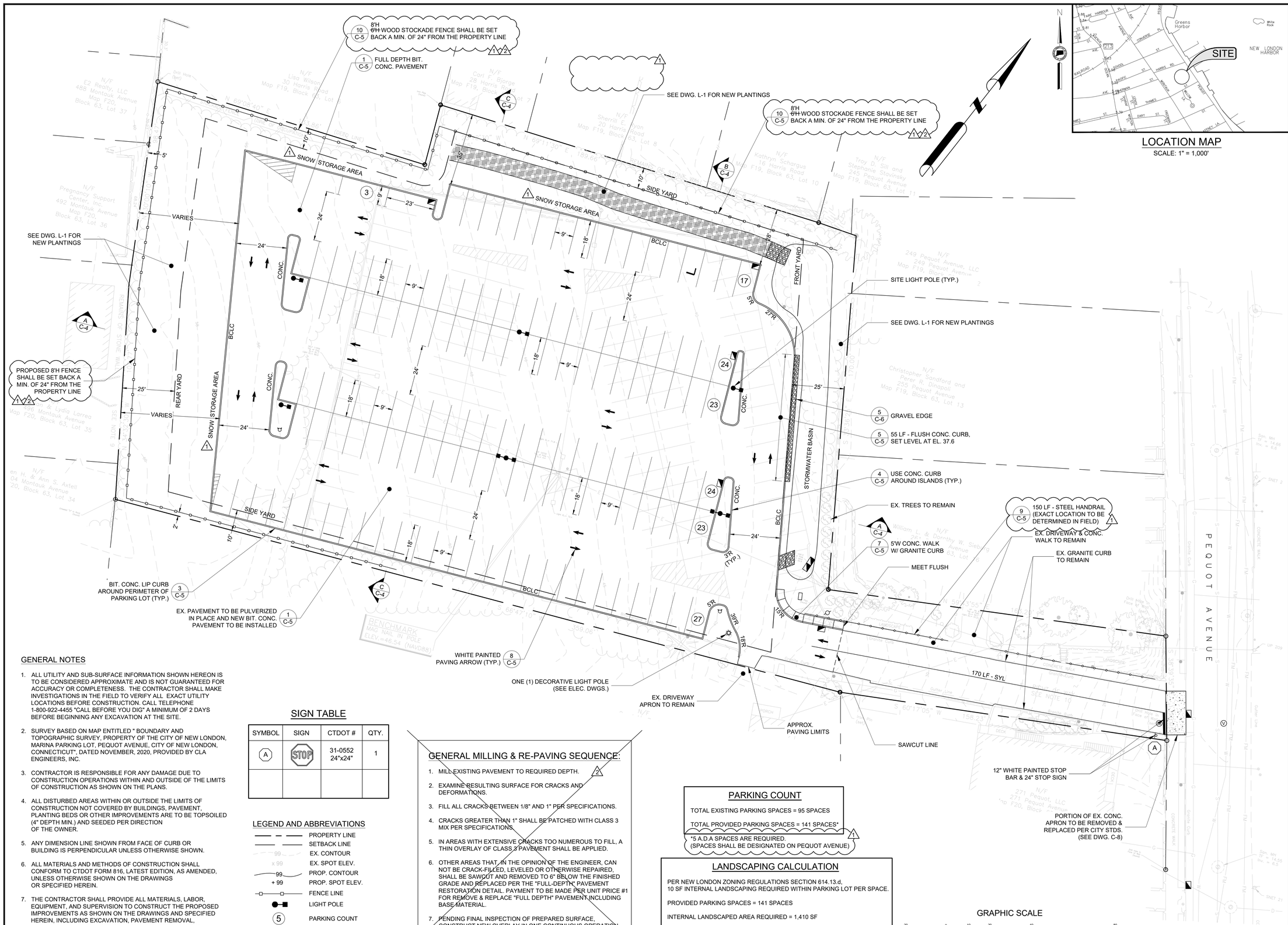
DRAWING TITLE
EXISTING CONDITIONS, DEMOLITION AND SOIL EROSION & SED. CONTROL

DRAWING NO.
C-1

SCALE: 1" = 20'
DATE: FEBRUARY 8, 2021
CD PROJECT NO. 2020-40

DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

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LOCATION MAP
SCALE: 1" = 1,000'

GENERAL NOTES

1. ALL UTILITY AND SUB-SURFACE INFORMATION SHOWN HEREON IS TO BE CONSIDERED APPROXIMATE AND IS NOT GUARANTEED FOR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHALL MAKE INVESTIGATIONS IN THE FIELD TO VERIFY ALL EXACT UTILITY LOCATIONS BEFORE CONSTRUCTION. CALL TELEPHONE 1-800-922-4455 "CALL BEFORE YOU DIG" A MINIMUM OF 2 DAYS BEFORE BEGINNING ANY EXCAVATION AT THE SITE.
2. SURVEY BASED ON MAP ENTITLED " BOUNDARY AND TOPOGRAPHIC SURVEY, PROPERTY OF THE CITY OF NEW LONDON, MARINA PARKING LOT, PEQUOT AVENUE, CITY OF NEW LONDON, CONNECTICUT", DATED NOVEMBER, 2020, PROVIDED BY CLA ENGINEERS, INC.
3. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONSTRUCTION OPERATIONS WITHIN AND OUTSIDE OF THE LIMITS OF CONSTRUCTION AS SHOWN ON THE PLANS.
4. ALL DISTURBED AREAS WITHIN OR OUTSIDE THE LIMITS OF CONSTRUCTION NOT COVERED BY BUILDINGS, PAVEMENT, PLANTING BEDS OR OTHER IMPROVEMENTS ARE TO BE TOPSOILED (4" DEPTH MIN.) AND SEEDED PER DIRECTION OF THE OWNER.
5. ANY DIMENSION LINE SHOWN FROM FACE OF CURB OR BUILDING IS PERPENDICULAR UNLESS OTHERWISE SHOWN.
6. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO CTDOT FORM 816, LATEST EDITION, AS AMENDED, UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN.
7. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, AND SUPERVISION TO CONSTRUCT THE PROPOSED IMPROVEMENTS AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING EXCAVATION, PAVEMENT REMOVAL, UNSUITABLE MATERIAL REMOVAL AND OFF-SITE DISPOSAL THEREOF, INSTALLATION OF BASE MATERIAL, PAVEMENTS, FILL MATERIAL, CURBING, DRAINAGE STRUCTURES, TOPSOIL AND SEED.

SIGN TABLE

SYMBOL	SIGN	CTDOT #	QTY.
A	STOP	31-0552 24"x24"	1

LEGEND AND ABBREVIATIONS

- PROPERTY LINE
- SETBACK LINE
- 99 — EX. CONTOUR
- x 99 — EX. SPOT ELEV.
- 99 — PROP. CONTOUR
- + 99 — PROP. SPOT ELEV.
- FENCE LINE
- LIGHT POLE
- (5) — PARKING COUNT
- PROPOSED CATCH BASIN
- BCLC — BIT. CONC. LIP CURB

GENERAL MILLING & RE-PAVING SEQUENCE:

1. MILL EXISTING PAVEMENT TO REQUIRED DEPTH.
2. EXAMINE RESULTING SURFACE FOR CRACKS AND DEFORMATIONS.
3. FILL ALL CRACKS BETWEEN 1/8" AND 1" PER SPECIFICATIONS.
4. CRACKS GREATER THAN 1" SHALL BE PATCHED WITH CLASS 3 MIX PER SPECIFICATIONS.
5. IN AREAS WITH EXTENSIVE CRACKS TOO NUMEROUS TO FILL, A THIN OVERLAY OF CLASS 3 PAVEMENT SHALL BE APPLIED.
6. OTHER AREAS THAT, IN THE OPINION OF THE ENGINEER, CAN NOT BE CRACK-FILLED, LEVELED OR OTHERWISE REPAIRED, SHALL BE SAWCUT AND REMOVED TO 6" BELOW THE FINISHED GRADE AND REPLACED PER THE "FULL-DEPTH" PAVEMENT RESTORATION DETAIL. PAYMENT TO BE MADE PER UNIT PRICE #1 FOR REMOVE & REPLACE "FULL DEPTH" PAVEMENT INCLUDING BASE MATERIAL.
7. PENDING FINAL INSPECTION OF PREPARED SURFACE, CONSTRUCT NEW OVERLAY IN ONE CONTINUOUS OPERATION.

PARKING COUNT

TOTAL EXISTING PARKING SPACES = 95 SPACES

TOTAL PROVIDED PARKING SPACES = 141 SPACES*

*5 A.D.A SPACES ARE REQUIRED. (SPACES SHALL BE DESIGNATED ON PEQUOT AVENUE)

LANDSCAPING CALCULATION

PER NEW LONDON ZONING REGULATIONS SECTION 614.13.d, 10 SF INTERNAL LANDSCAPING REQUIRED WITHIN PARKING LOT PER SPACE.

PROVIDED PARKING SPACES = 141 SPACES

INTERNAL LANDSCAPED AREA REQUIRED = 1,410 SF

INTERNAL LANDSCAPED AREA PROVIDED = 1,430 SF

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

OWNER:
CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:
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REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

CHRISTIAN A. DEANGELIS — 27563 — REGISTERED PROFESSIONAL ENGINEER — STATE OF CONNECTICUT

NO.	DATE	BY
REVISIONS		
2 BID DOCUMENTS	3-30-21	ARM
1 CITY COMMENTS	3-8-21	ARM

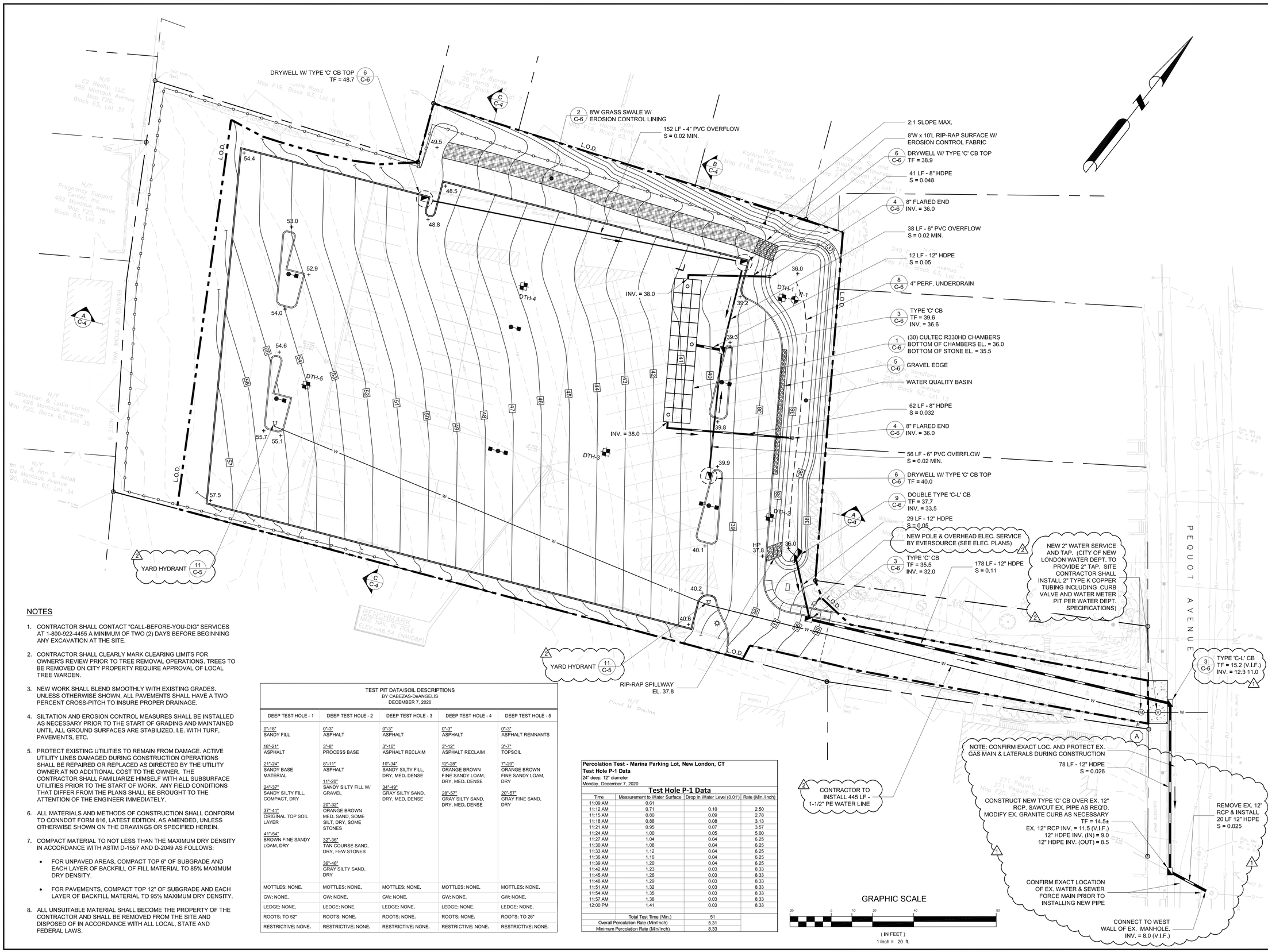
DRAWING TITLE
SITE PLAN

DRAWING NO.
C-2

SCALE: 1" = 20'
DATE: FEBRUARY 8, 2021
CD PROJECT NO. 2020-40

DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

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NOTES

1. CONTRACTOR SHALL CONTACT "CALL-BEFORE-YOU-DIG" SERVICES AT 1-800-922-4455 A MINIMUM OF TWO (2) DAYS BEFORE BEGINNING ANY EXCAVATION AT THE SITE.
2. CONTRACTOR SHALL CLEARLY MARK CLEARING LIMITS FOR OWNER'S REVIEW PRIOR TO TREE REMOVAL OPERATIONS. TREES TO BE REMOVED ON CITY PROPERTY REQUIRE APPROVAL OF LOCAL TREE WARDEN.
3. NEW WORK SHALL BLEND SMOOTHLY WITH EXISTING GRADES. UNLESS OTHERWISE SHOWN, ALL PAVEMENTS SHALL HAVE A TWO PERCENT CROSS-PITCH TO INSURE PROPER DRAINAGE.
4. SILTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS NECESSARY PRIOR TO THE START OF GRADING AND MAINTAINED UNTIL ALL GROUND SURFACES ARE STABILIZED, I.E. WITH TURF, PAVEMENTS, ETC.
5. PROTECT EXISTING UTILITIES TO REMAIN FROM DAMAGE. ACTIVE UTILITY LINES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE UTILITY OWNER AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL SUBSURFACE UTILITIES PRIOR TO THE START OF WORK. ANY FIELD CONDITIONS THAT DIFFER FROM THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.
6. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO CONNDOT FORM 816, LATEST EDITION, AS AMENDED, UNLESS OTHERWISE SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN.
7. COMPACT MATERIAL TO NOT LESS THAN THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557 AND D-2049 AS FOLLOWS:
   - FOR UNPAVED AREAS, COMPACT TOP 6" OF SUBGRADE AND EACH LAYER OF BACKFILL OF FILL MATERIAL TO 85% MAXIMUM DRY DENSITY.
   - FOR PAVEMENTS, COMPACT TOP 12" OF SUBGRADE AND EACH LAYER OF BACKFILL MATERIAL TO 95% MAXIMUM DRY DENSITY.
8. ALL UNSUITABLE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.

TEST PIT DATA/SOIL DESCRIPTIONS
BY CABEZAS-DeANGELIS
DECEMBER 7, 2020

DEEP TEST HOLE - 1	DEEP TEST HOLE - 2	DEEP TEST HOLE - 3	DEEP TEST HOLE - 4	DEEP TEST HOLE - 5
0"-18" SANDY FILL 18"-21" ASPHALT 21"-24" SANDY BASE MATERIAL 24"-37" SANDY SILTY FILL, COMPACT, DRY 37"-41" ORIGINAL TOP SOIL LAYER 41"-54" BROWN FINE SANDY LOAM, DRY	0"-3" ASPHALT 3"-8" PROCESS BASE 8"-11" ASPHALT 11"-20" SANDY SILTY FILL W/ GRAVEL 20"-32" ORANGE BROWN MED. SAND, SOME SILT, DRY, SOME STONES 32"-36" TAN COURSE SAND, DRY, FEW STONES 36"-46" GRAY SILTY SAND, DRY	0"-3" ASPHALT 3"-10" ASPHALT RECLAIM 10"-34" SANDY SILTY FILL, DRY, MED. DENSE 34"-49" GRAY SILTY SAND, DRY, MED. DENSE	0"-3" ASPHALT 3"-12" ASPHALT RECLAIM 12"-28" ORANGE BROWN FINE SANDY LOAM, DRY, MED. DENSE 28"-57" GRAY SILTY SAND, DRY, MED. DENSE	0"-3" ASPHALT REMNANTS 3"-7" TOPSOIL 7"-20" ORANGE BROWN FINE SANDY LOAM, DRY 20"-57" GRAY FINE SAND, DRY
MOTTLES: NONE.	MOTTLES: NONE.	MOTTLES: NONE.	MOTTLES: NONE.	MOTTLES: NONE.
GW: NONE.	GW: NONE.	GW: NONE.	GW: NONE.	GW: NONE.
LEDGE: NONE.	LEDGE: NONE.	LEDGE: NONE.	LEDGE: NONE.	LEDGE: NONE.
ROOTS: TO 52"	ROOTS: NONE.	ROOTS: NONE.	ROOTS: NONE.	ROOTS: TO 26"
RESTRICTIVE: NONE.	RESTRICTIVE: NONE.	RESTRICTIVE: NONE.	RESTRICTIVE: NONE.	RESTRICTIVE: NONE.

Percolation Test - Marina Parking Lot, New London, CT
Test Hole P-1 Data
24" deep, 12" diameter
Monday, December 7, 2020

Test Hole P-1 Data

Time	Measurement to Water Surface	Drop in Water Level (0.01')	Rate (Min./Inch)
11:09 AM	0.61		
11:12 AM	0.71	0.10	2.50
11:15 AM	0.80	0.09	2.78
11:18 AM	0.88	0.08	3.13
11:21 AM	0.95	0.07	3.57
11:24 AM	1.00	0.05	5.00
11:27 AM	1.04	0.04	6.25
11:30 AM	1.08	0.04	6.25
11:33 AM	1.12	0.04	6.25
11:36 AM	1.16	0.04	6.25
11:39 AM	1.20	0.04	6.25
11:42 AM	1.23	0.03	8.33
11:45 AM	1.26	0.03	8.33
11:48 AM	1.29	0.03	8.33
11:51 AM	1.32	0.03	8.33
11:54 AM	1.35	0.03	8.33
11:57 AM	1.38	0.03	8.33
12:00 PM	1.41	0.03	8.33
Total Test Time (Min.)		51	
Overall Percolation Rate (Min/Inch)		5.31	
Minimum Percolation Rate (Min/Inch)		8.33	

OWNER:
CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:
DESMAN Design Management

CIVIL ENGINEER:
Cabezas DeAngelis ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:
SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15
NEW LONDON, CONNECTICUT

STATE OF CONNECTICUT · CHRISTIAN A. DeANGELIS · #PEN.0033 · LICENSED PROFESSIONAL ENGINEER

1 BID DOCUMENTS	3-30-21	ARM
2 CITY COMMENTS	3-8-21	ARM
NO.	DATE	BY

REVISIONS

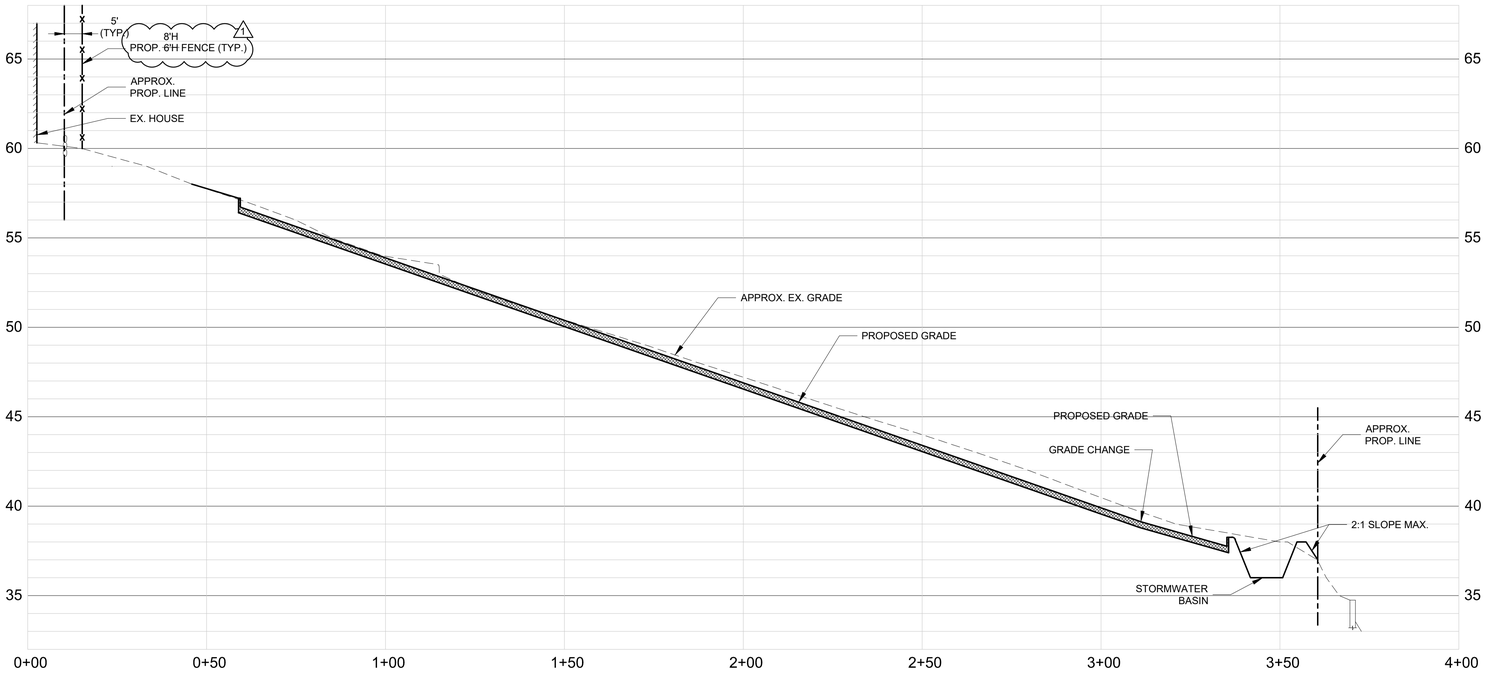
DRAWING TITLE
GRADING & DRAINAGE PLAN

DRAWING NO.
C-3

SCALE: 1" = 20'
DATE: FEBRUARY 8, 2021
CD PROJECT NO. 2020-40

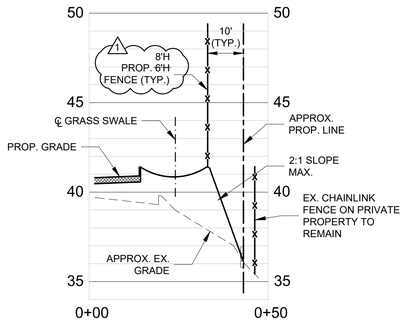
DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

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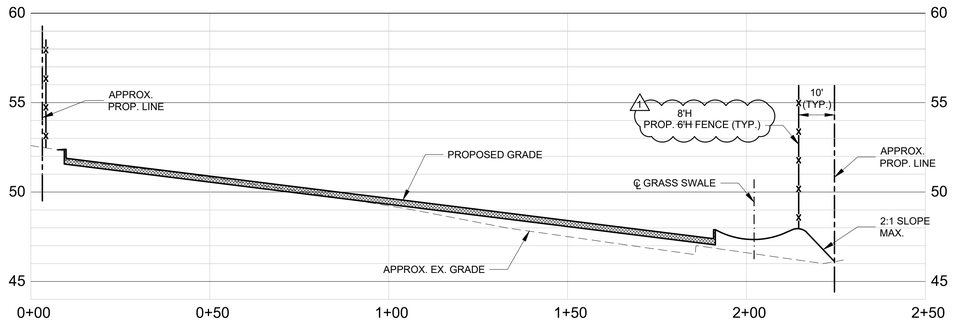
SECTION A-A

HORIZ. SCALE: 1" = 20'-0"
VERT. SCALE: 1" = 4'-0"



SECTION B-B

HORIZ. SCALE: 1" = 20'-0"
VERT. SCALE: 1" = 4'-0"



SECTION C-C

HORIZ. SCALE: 1" = 20'-0"
VERT. SCALE: 1" = 4'-0"

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181 STATE STREET
NEW LONDON, CONNECTICUT

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DESMAN
Design Management

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Cabezas DeAngelis
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PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15
NEW LONDON, CONNECTICUT

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	ARM
1 CITY COMMENTS	3-8-21	ARM

REVISIONS

DRAWING TITLE

SITE SECTIONS

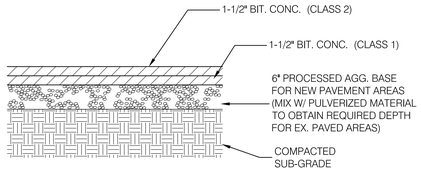
DRAWING NO.

C-4

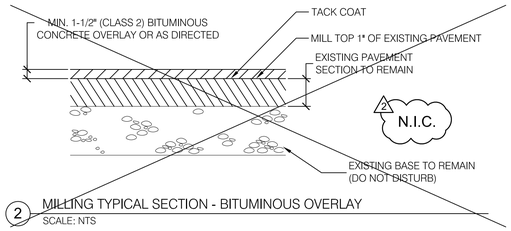
SCALE: AS NOTED
DATE: FEBRUARY 8, 2021
CD PROJECT NO. 2020–40

DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

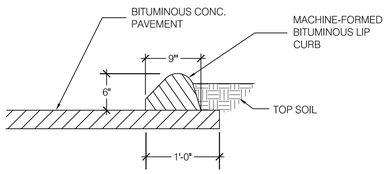
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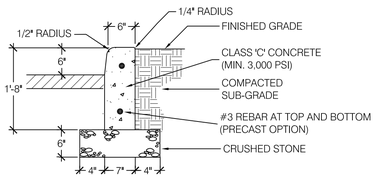
1 BITUMINOUS CONCRETE PAVEMENT (FULL-DEPTH PAVEMENT)
SCALE: N.T.S.



2 MILLING TYPICAL SECTION - BITUMINOUS OVERLAY
SCALE: NTS

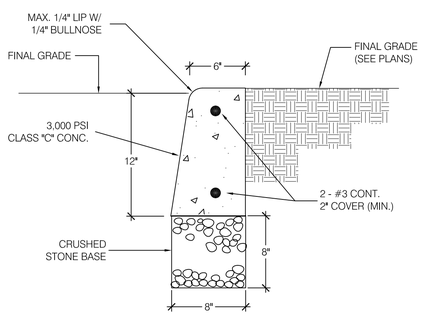


3 BITUMINOUS LIP CURB
SCALE: N.T.S.

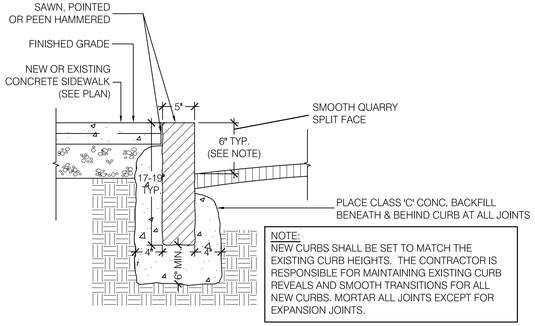


NOTE: EXP. JOINTS TO BE SPACED BETWEEN 5' - 10' O.C.

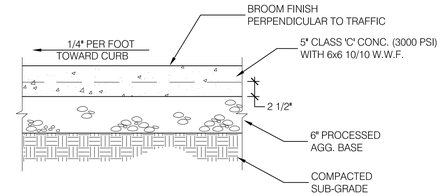
4 CONCRETE CURB
SCALE: NTS



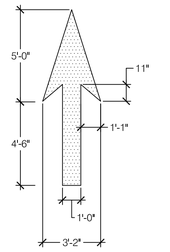
5 CONCRETE CURB - FLUSH CONDITION
NOT TO SCALE



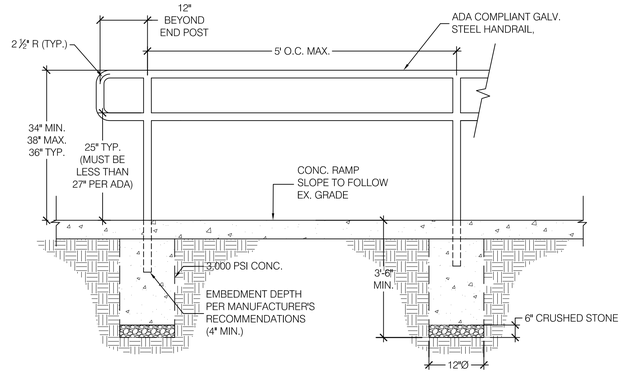
6 GRANITE CURB
SCALE: N.T.S.



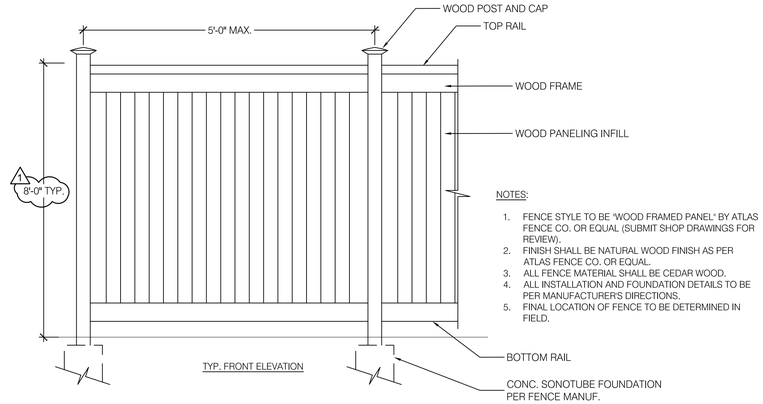
7 CONCRETE SIDEWALK
SCALE: 1" = 1'-0"



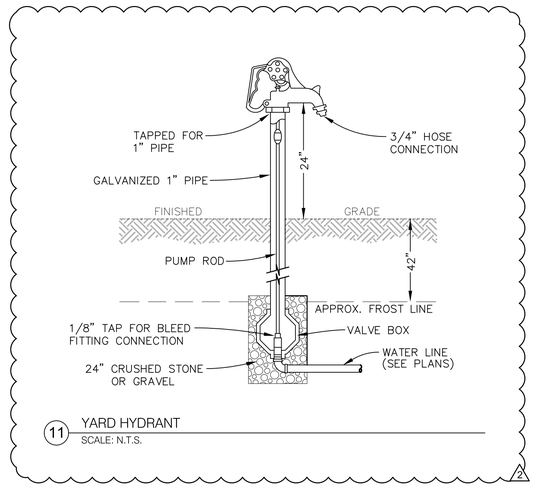
8 PAVEMENT ARROW DETAILS
1/4" = 1'-0"



9 METAL HANDRAIL
SCALE: N.T.S.



10 WOOD STOCKADE FENCE
SCALE: N.T.S.

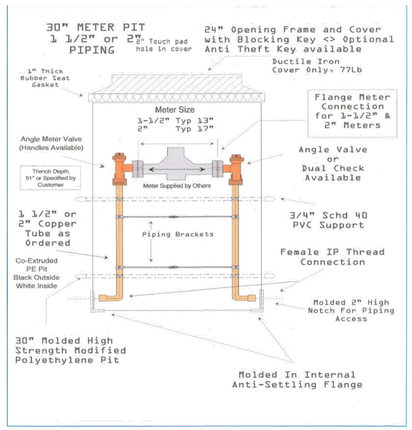


11 YARD HYDRANT
SCALE: N.T.S.

2

New London Utilities
Operated by Veolia Water
15 Masonic St.
New London, CT
860- 447-5222

1 1/2" AND 2" PRE-PLUMBED METER PIT WITH 20" MONITOR FRAME AND COVER 36" DIAMETER PIT REQUIRED



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REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15
NEW LONDON, CONNECTICUT

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	ARM
1 CITY COMMENTS	3-8-21	ARM

REVISIONS

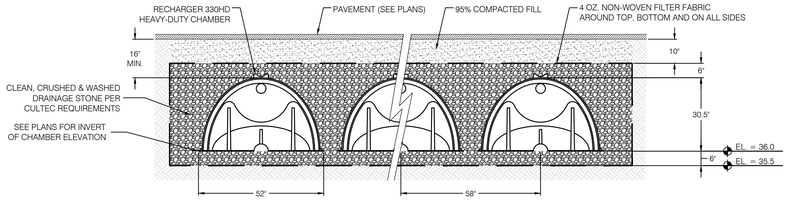
DRAWING TITLE
TYPICAL SITE DETAILS

DRAWING NO.
C-5

SCALE: AS NOTED
DATE: FEBRUARY 8, 2021
CD PROJECT NO. 2020-40

DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

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GENERAL NOTES

RECHARGER 330HD BY CULTEC, INC. OF BROOKFIELD, CT.

STORAGE PROVIDED = 11.32 CF/FT PER DESIGN UNIT.

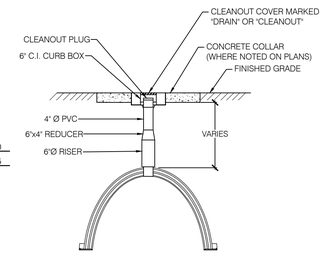
REFER TO CULTEC, INC.'S CURRENT RECOMMENDED INSTALLATION GUIDELINES.

USE RECHARGER 330HD HEAVY DUTY FOR TRAFFIC AND/ OR H20 APPLICATIONS.

ALL RECHARGER 330HD HEAVY DUTY UNITS ARE MARKED WITH A COLOR STRIPE FORMED INTO THE PART ALONG THE LENGTH OF THE CHAMBER.

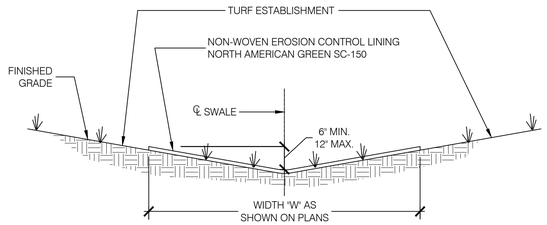
ALL RECHARGER 330 CHAMBERS MUST BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION



TYPICAL
CLEAN-OUT

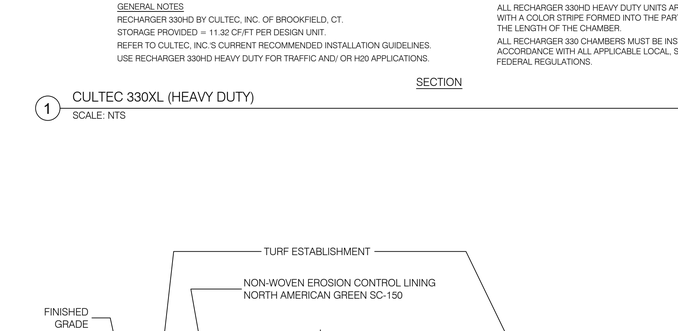
1 CULTEC 330XL (HEAVY DUTY)
SCALE: NTS



2 GRASS SWALE WITH EROSION CONTROL LINING
SCALE: NTS

TYPE "C" PLAN

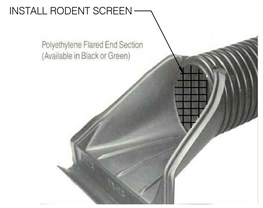
TYPE "C-L" PLAN



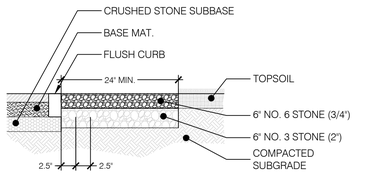
SECTION A-A

SECTION B-B

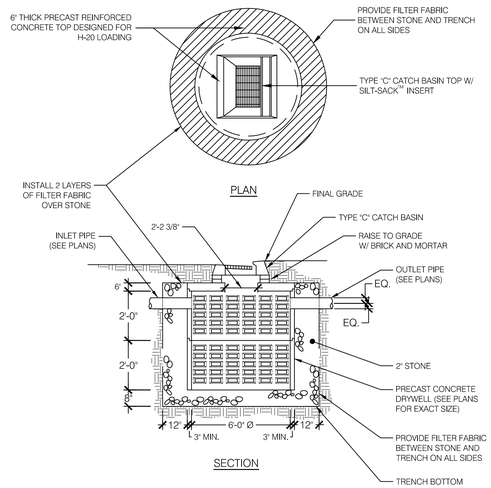
3 TYPICAL CATCH BASIN - TYPE "C" OR "C-L"
SCALE: N.T.S.



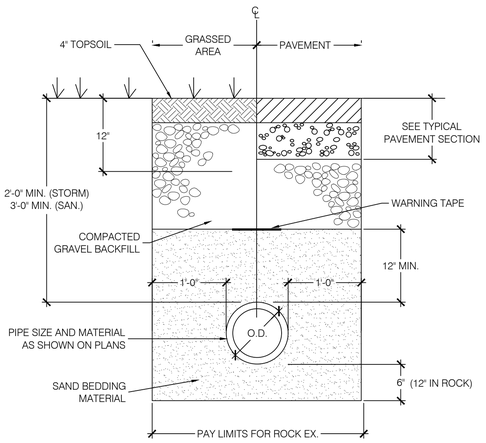
4 FLARED END OUTLET
SCALE: N.T.S.



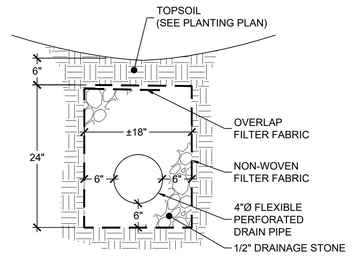
5 GRAVEL EDGE
SCALE: N.T.S.



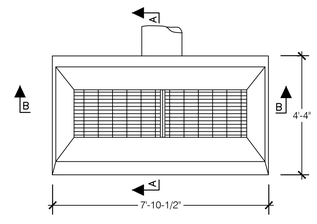
6 DRYWELL CATCH BASIN w/ TYPE "C" CB TOP
SCALE: N.T.S.



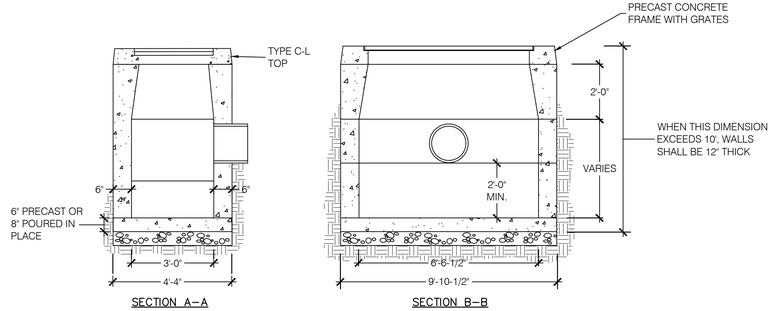
7 TYPICAL TRENCH SECTION (PVC OR HDPE PIPE)
SCALE: 1" = 1'-0"



8 PERFORATED PIPE UNDERDRAIN
SCALE: NTS



PLAN



SECTION A–A

SECTION B–B

NOTES:

1. BASE OF CATCH BASIN SHALL BE 6" PRECAST OR 8" POURED IN PLACE CONCRETE.
2. CATCH BASIN WALLS SHALL BE CLASS "A" CONCRETE OR MASONRY CONCRETE UNITS OR SOLID CONCRETE CATCH BASIN BLOCK

9 TYPICAL DOUBLE CATCH BASIN TYPE 2
SCALE: N.T.S.

OWNER:

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NEW LONDON, CONNECTICUT

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Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

STATE OF CONNECTICUT
CHRISTIAN A. DeANGELIS
#PEN.0022699
REGISTERED
PROFESSIONAL ENGINEER

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	ARM
1 CITY COMMENTS	3-8-21	ARM

REVISIONS

DRAWING TITLE

TYPICAL DRAINAGE DETAILS

DRAWING NO.

C-6

SCALE: AS NOTED

DATE: FEBRUARY 8, 2021

CD PROJECT NO. 2020-40

DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

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SEDIMENT AND EROSION CONTROL NARRATIVE

THE INTENT OF THIS EROSION AND SEDIMENT CONTROL PLAN IS TO COLLECT SEDIMENT IN RUN-OFF DURING EARTH WORK OPERATIONS BEFORE CONSTRUCTION AREAS MAY BE STABILIZED. THE MEASURES AS DESCRIBED HEREIN SHALL BE INSTALLED WHERE SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER OR CITY REPRESENTATIVE. SILTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE "2002 CT DEP GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL."

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE RECONSTRUCTION OF A PROPOSED PUBLIC PARKING LOT AND RELATED SITE IMPROVEMENTS.

IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL AND MAINTAIN THE EROSION CONTROL MEASURES DURING THE CONSTRUCTION PERIOD. WHEN CONSTRUCTION IS COMPLETE, IT WILL BE THE RESPONSIBILITY OF THE OWNER TO MAINTAIN THE DRAINAGE SYSTEM TO ENSURE EFFICIENT OPERATION AND REMOVAL OF SEDIMENT. CONSTRUCTION IS SCHEDULED TO BEGIN IN THE SPRING OF 2021 AND END SUMMER OF 2021.

SEDIMENT AND EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL ASSIGN A PERSON OR PERSONS WHO WILL BE RESPONSIBLE FOR IMPLEMENTING THE EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN AND DESCRIBED HEREIN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF SEDIMENT AND EROSION CONTROL METHODS AND INFORMING ALL PARTIES ENGAGED IN THE CONSTRUCTION OF THE SITE OF THE REQUIREMENTS AND OBJECTIVES OF THIS PLAN, AND NOTIFYING THE PLANNING AND ZONING OFFICER OF ANY TRANSFER OF THIS RESPONSIBILITY.

2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED BEFORE ANY LAND DISTURBANCE AND SHALL CONSIST OF: ANTI-TRACKING PAD, HAYBALES, SILT FENCE, MULCH, AND TEMPORARY SEEDING. MEASURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

3. CLEAN OUT OF THE OIL/WATER SEPARATOR, CATCH BASIN SUMPS AND CULVERTS SHALL OCCUR ON A REGULAR BASIS DURING THE CONSTRUCTION PERIOD. THE ACCUMULATED SEDIMENT SHALL BE DISPOSED OF TO A LOCATION APPROVED BY THE ENGINEER OR CITY REPRESENTATIVE.

4. THE EROSION CONTROL FEATURES SHALL BE CHECKED DAILY AND AFTER EACH SEVERE RAIN STORM FOR DAMAGE, UNTIL SUCH FEATURES ARE, IN THE OPINION OF THE ENGINEER, NO LONGER NEEDED. ALL SEDIMENTATION SYSTEMS SHALL HAVE THE ACCUMULATED SEDIMENT REMOVED BEFORE IT SIGNIFICANTLY REDUCES THEIR STORAGE VOLUME OR FUNCTION PRIOR TO THE NEXT RAIN STORM FORECAST FOR THE REGION.

5. THE CONTRACTOR SHALL HAVE ON HAND AT ALL TIMES THE NECESSARY MATERIALS AND EQUIPMENT TO PROVIDE FOR EARLY MEASURES TO CONTROL EROSION AND SEDIMENT LOSS. THE CONTRACTOR SHALL CEASE ANY OF HIS OPERATIONS WHICH WILL INCREASE EROSION OR SEDIMENT LOSS DURING RAIN STORMS.

6. ALL SLOPES OF STOCKPILED MATERIAL AND OTHER DISTURBED AREAS SHALL BE STABILIZED AND PROTECTED BY SURROUNDING WITH HAYBALES, AS SHOWN ON THE PLANS. ALL DAMAGED AREAS SHALL BE REPAIRED AS SOON AS POSSIBLE. THE CONTRACTOR SHALL RESPOND TO MAINTENANCE OR ADDITIONAL MEASURES ORDERED BY THE ENGINEER OR THE CITY REPRESENTATIVE WITHIN 24 HOURS.

7. THE CONTRACTOR SHALL PERFORM DUST CONTROL ON A DAILY BASIS DURING PERIODS OF DRY WEATHER, ON ALL AREAS WHERE SOIL HAS NOT YET BEEN STABILIZED AND AS DIRECTED BY THE ENGINEER.

8. AT THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES, WHEN ALL DISTURBED AREAS ARE STABILIZED WITH NEW TURF, PAVEMENT, ETC., THE CONTRACTOR SHALL COMPLETELY REMOVE ALL SEDIMENTATION AND EROSION CONTROL MEASURES FROM THE SITE, UNLESS SPECIFICALLY ORDERED BY THE ENGINEER TO REMAIN IN PLACE.

SEDIMENT AND EROSION CONTROL MEASURES

MULCHES SHALL BE HAY, STRAW, WOOD CELLULOSE, WOOD CHIPS, STONE, NETTING, BURLAP OR OTHER SUITABLE MULCH MATERIAL AS APPROVED BY THE ENGINEER. MULCHES SHALL BE REASONABLY CLEAN AND FREE OF NOXIOUS WEEDS AND DELETERIOUS MATERIALS. ASPHALT SPRAYS WILL NOT BE ALLOWED. THE CONTRACTOR SHALL PREVENT STRAW, WOOD CHIPS, ETC., FROM ENTERING ANY WATERCOURSE.

HAY BALES SHALL BE PLACED AROUND ALL EXISTING DRAINAGE INLETS OR AS DIRECTED BY THE ENGINEER. THEY SHALL BE HELD IN PLACE BY TWO WOODEN STAKES IN EACH BALE. BALES SHALL BE MAINTAINED OR REPLACED AS ORDERED BY THE ENGINEER UNTIL THEY ARE NO LONGER NECESSARY FOR THE PURPOSE INTENDED OR ARE ORDERED REMOVED BY THE ENGINEER. HAY BALES SHALL BE MADE OF HAY WITH 40 POUNDS MINIMUM WEIGHT AND 120 POUNDS MAXIMUM WEIGHT. WOOD STAKES SHALL BE A MINIMUM OF 1 INCH BY 1 INCH NOMINAL SIZE BY A MINIMUM OF 3 FEET LONG.

SILT FENCE SHALL CONSIST OF 3-FOOT WIDE GEOSYNTHETIC FABRIC WITH PREFABRICATED WOOD POSTS AS MANUFACTURED BY "MIRAFI" OR EQUAL. THE BOTTOM SIX INCHES OF FABRIC SHALL BE BURIED BY EITHER TRENCHING OR BY LAYING THE SIX INCH SECTION HORIZONTALLY ON THE GROUND AND BURYING BY RAMPING THE TOPSOIL UP TO THE CONTROL FENCE.

- MINIMUM LENGTH OF SILT FENCE IS 15 L.F.
- MAXIMUM POST SPACING IS 10 L.F.
- JOINTS IN FILTER FABRIC SHALL BE ONLY AT SUPPORT POSTS WITH MINIMUM 6" OVERLAP, SECURELY SEALED
- SILT FENCE SHALL NOT BE USED IN A WATER COURSE
- FABRIC SUSCEPTIBLE TO SUNLIGHT DAMAGE SHALL NOT BE USED IN ANY INSTALLATIONS WHERE EXPOSURE TO LIGHT WILL EXCEED 30 DAYS, UNLESS SPECIFICALLY AUTHORIZED IN WRITING BY THE ENGINEER.

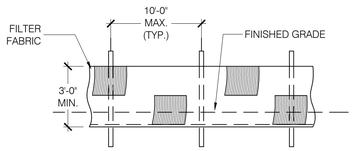
TEMPORARY GRASS SEED SHALL BE PERENNIAL RYE-GRASS (LOLIUM PERENNE) OR AN IMPROVED VARIETY THEREOF, SUCH AS MANHATTAN, HAVING A MINIMUM PURITY OF 98 PERCENT AND A MINIMUM GERMINATION OF 90 PERCENT. THE SEEDING MAY BE ALTERED BY THE ENGINEER IF REQUESTED BY THE CONTRACTOR TO SUIT SPECIAL AREAS OR CONDITIONS.

SCHEDULE OF OPERATIONS

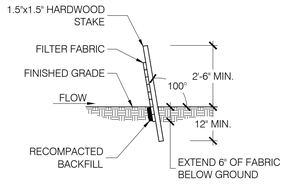
		ESTIMATED TIME FRAME
1.	INSTALL PERIMETER EROSION AND SEDIMENT CONTROL MEASURES	1 DAY
2.	PROCEED WITH CLEARING OF THE SITE.	1 WEEK
3.	INSTALL INTERIOR SEDIMENT AND EROSION CONTROL DEVICES.	1 DAY
4.	FORM AND COMPACT FINAL SUBGRADE. INSTALL DRAINAGE STRUCTURES AND OTHER BELOW-GRADE IMPROVEMENTS.	2 WEEKS
5.	INSTALL ABOVE-GRADE IMPROVEMENTS INSTALL BASE MATERIAL.	2 WEEKS
6.	COMPLETE PAVING OF PARKING LOT. PAINT LINE STRIPING.	2 WEEK
7.	COMPLETE FINAL GRADING/TOPSOIL & SEEDING; STABILIZE ALL GROUND SURFACES.	1 WEEK
8.	PERFORM FINAL CLEAN-UP, REPAIR EXISTING EROSION CONTROL FEATURES	2 DAYS
		±3 MONTHS TOTAL

CONTACT PERSON

SITE ENGINEER:
CHRIS DeANGELIS, PE
203-330-8700

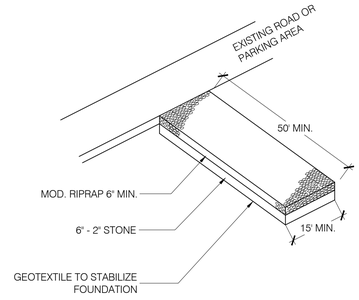


ELEVATION

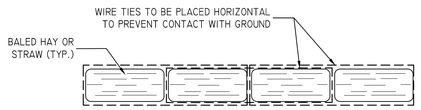


SECTION

1 SILT FENCE DETAIL
SCALE: N.T.S.



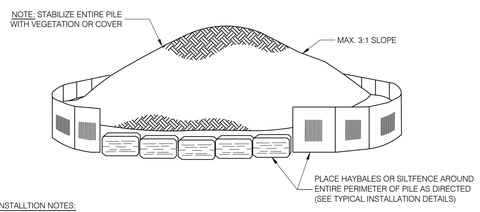
2 ANTI-TRACKING PAD DETAIL
SCALE: N.T.S.



PLAN

NOTE: TO BE USED FOR HAY BALES LOCATED ON CONCRETE OR ASPHALT SURFACES.

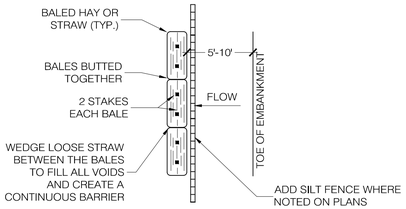
3 HAY BALE DETAIL - IMPERVIOUS SURFACE
SCALE: N.T.S.



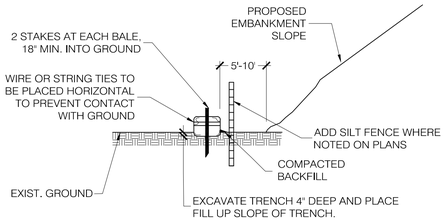
INSTALLTION NOTES:

1. AREA CHOSEN FOR STOCKPILE OPERATION SHALL BE DRY AND STABLE.
2. THE GROUND SURFACE SHALL SLOPE AWAY FROM THE STOCK PILE.
3. IF NECESSARY, PLACE TARP OR IMPERVIOUS MATERIAL BENEATH STOCKPILE TO PREVENT MIXING OF SOIL.
4. COVER STOCKPILE WITH FABRIC OR VEGETATION AS DIRECTED.
5. MAX. SLOPE OF STOCKPILE SHALL BE 3:1 (H:V) UNLESS OTHERWISE APPROVED.

4 TEMPORARY SOIL STOCKPILE
SCALE: N.T.S.



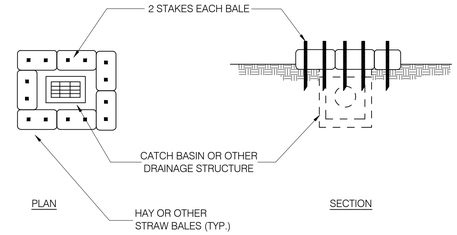
PLAN



SECTION

TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE TOE OF THE EMBANKMENT. INSTALL AND MAINTAIN THROUGHOUT CONSTRUCTION PERIOD.

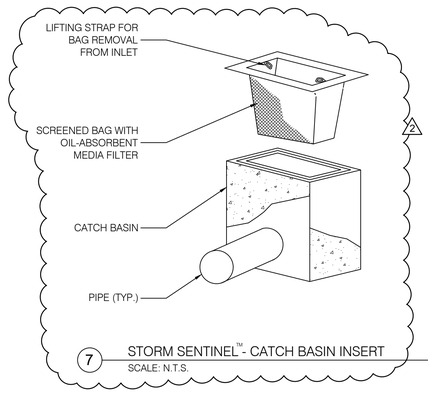
5 HAY BALE DETAIL - SLOPE PROTECTION
SCALE: N.T.S.



PLAN SECTION

NOTE:
ALL EXISTING OR PROPOSED CATCH BASINS IN AREAS DISTURBED BY CONSTRUCTION SHALL BE PROTECTED BY SEDIMENTATION CONTROLS.

6 HAY BALE DETAIL- CATCH BASIN IN A DEPRESSION - TYPE 'C'
SCALE: N.T.S.



7 STORM SENTINEL™ - CATCH BASIN INSERT
SCALE: N.T.S.

OWNER:

CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:

DESMAN Design Management

CIVIL ENGINEER:

Cabezas DeAngelis ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:

SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	ARM
1 CITY COMMENTS	3-8-21	ARM

REVISIONS

DRAWING TITLE

SOIL EROSION & SED. CONTROL DETAILS & NOTES

DRAWING NO.

C-7

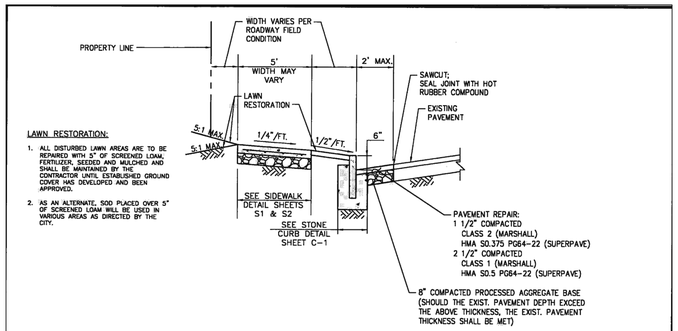
SCALE: AS NOTED

DATE: FEBRUARY 8, 2021

CD PROJECT NO. 2020-40

DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

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LAWN RESTORATION:

1. ALL DISTURBED LAWN AREAS ARE TO BE REPAIRED WITH 5" OF SCREENED LOAM, FERTILIZER, SEEDED AND MULCHED AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL ESTABLISHED GROUND COVER HAS DEVELOPED AND BEEN APPROVED.
2. AS AN ALTERNATE, SOD PLACED OVER 5" OF SCREENED LOAM WILL BE USED IN VARIOUS AREAS AS DIRECTED BY THE CITY.

TYPICAL ROADWAY REPAIR DETAIL FOR ALL SIDEWALKS, CURBING ADA RAMPS AND DRIVEWAY APRON REPAIR/INSTALLATIONS

REV. NO.	DATE	ENGINEER	DESCRIPTION
REVISIONS			

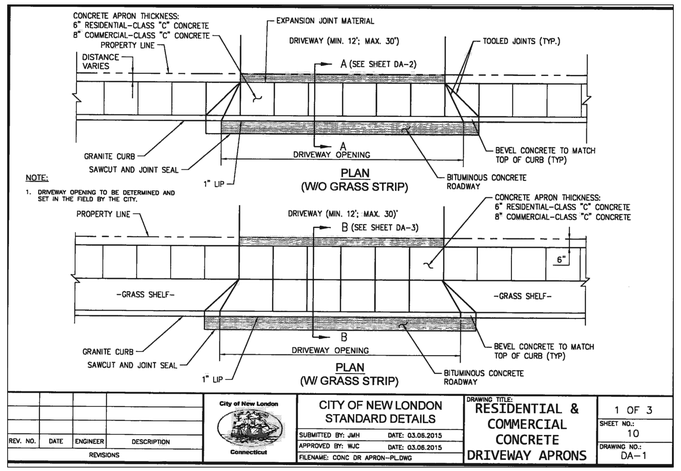
City of New London, Connecticut

CITY OF NEW LONDON STANDARD DETAILS

SUBMITTED BY: JMH DATE: 03.06.2015
APPROVED BY: WJC DATE: 03.06.2015
FILENAME: PAVEMENT REPAIR.DWG

DRAWING TITLE: PAVEMENT REPAIR WITH CURB INSTALLATION

1 OF 1
SHEET NO.: 2
DRAWING NO.: RW-3



REV. NO.	DATE	ENGINEER	DESCRIPTION
REVISIONS			

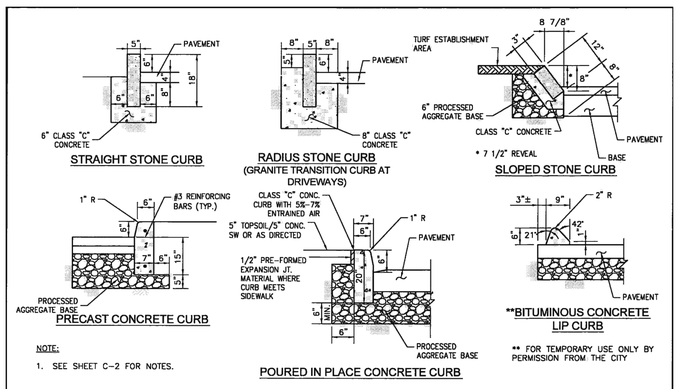
City of New London, Connecticut

CITY OF NEW LONDON STANDARD DETAILS

SUBMITTED BY: JMH DATE: 03.06.2015
APPROVED BY: WJC DATE: 03.06.2015
FILENAME: CONC DR APRON-PL.DWG

DRAWING TITLE: RESIDENTIAL & COMMERCIAL CONCRETE DRIVEWAY APRONS

1 OF 3
SHEET NO.: 10
DRAWING NO.: DA-1



NOTE:

1. SEE SHEET C-2 FOR NOTES.

NOTES:

1. ALL STONE CURB SHALL CONFORM TO THE STATE OF CONNECTICUT STANDARD SPECIFICATION FORM 816, ARTICLE M12.06 FOR GRANITE CURBING.
2. MINIMUM LENGTH OF STONE CURB IS 4'-0".
3. STONE CURB SHALL BE FINISH-SAWN TOP AND SPLIT FACE JOINTED.
4. STONE CURB WITH A RADIUS OF 100' OR LESS SHALL BE BUILT OF CURVED STONE CURB AND SET IN 8" OF CLASS "C" CONCRETE AS SHOWN ON THE DETAIL.
5. ALL OPEN BOTTOM JOINTS BETWEEN SECTIONS OF STRAIGHT STONE CURB SHALL BE BACKFILLED WITH CLASS "C" CONCRETE.
6. ALL BACKFILL MATERIAL AROUND STRAIGHT, RADIUS OR RESET STONE CURBING SHALL BE CLASS "C" CONCRETE (3,000 PSI).
7. TOP OF CONCRETE BACKFILL SHALL BE 10" ON PAVEMENT SIDE AND 5" ON BACK SIDE, MEASURED DOWN, FROM TOP OF CURB.
8. AT ALL BEGINNING AND ENDING POINTS OF ALL STONE CURBING INSTALLATIONS, A 3-FOOT TAPERED CURB SHALL BE USED TO TRANSITION BETWEEN THE EXISTING PAVEMENT/GROUND AND HEIGHT OF THE NEW CURBING, OR AS DIRECTED.

** FOR TEMPORARY USE ONLY BY PERMISSION FROM THE CITY

REV. NO.	DATE	ENGINEER	DESCRIPTION
REVISIONS			

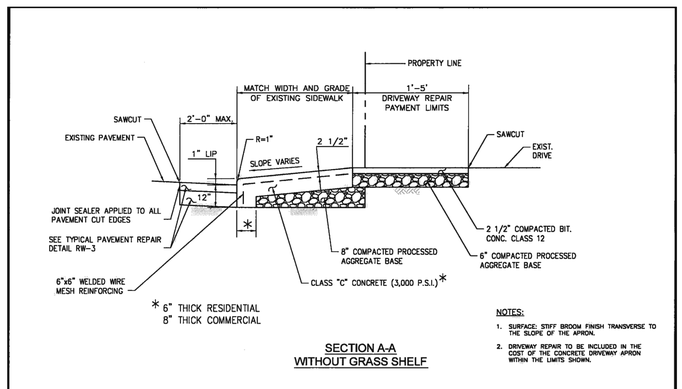
City of New London, Connecticut

CITY OF NEW LONDON STANDARD DETAILS

SUBMITTED BY: JMH DATE: 03.06.2015
APPROVED BY: WJC DATE: 03.06.2015
FILENAME: CURB TYPES.DWG

DRAWING TITLE: VARIOUS CURB TYPES

PROJECT NO.: 1 OF 2
SHEET NO.: 3
DRAWING NO.: C-1



NOTES:

1. SURFACE: STIFF BROOM FINISH TRANSVERSE TO THE SLOPE OF THE APRON.
2. DRIVEWAY REPAIR TO BE INCLUDED IN THE COST OF THE CONCRETE DRIVEWAY APRON WITHIN THE LIMITS SHOWN.

REV. NO.	DATE	ENGINEER	DESCRIPTION
REVISIONS			

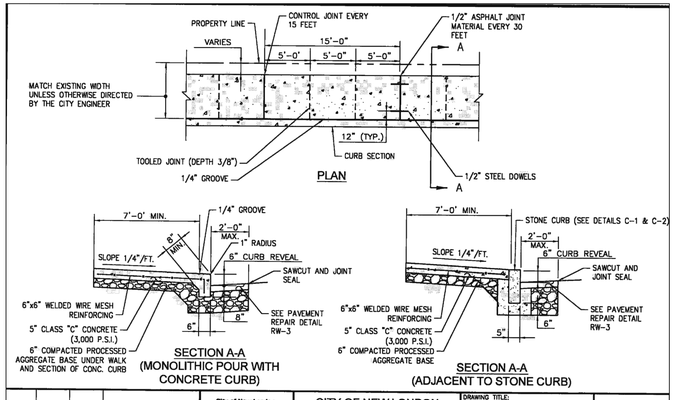
City of New London, Connecticut

CITY OF NEW LONDON STANDARD DETAILS

SUBMITTED BY: JMH DATE: 03.06.2015
APPROVED BY: WJC DATE: 03.06.2015
:CONC DR APRON-SEC A-A.DWG

DRAWING TITLE: CONCRETE DRIVEWAY APRON SECTION A-A

2 OF 3
SHEET NO.: 11
DRAWING NO.: DA-2



REV. NO.	DATE	ENGINEER	DESCRIPTION
REVISIONS			

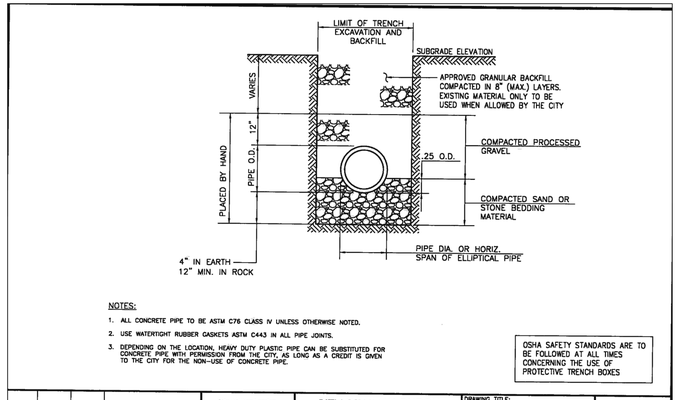
City of New London, Connecticut

CITY OF NEW LONDON STANDARD DETAILS

SUBMITTED BY: JMH DATE: 03.06.2015
APPROVED BY: WJC DATE: 03.06.2015
FILENAME: CONC SW CURB.DWG

DRAWING TITLE: CONCRETE SIDEWALK ADJACENT TO CURB

2 OF 2
SHEET NO.: 6
DRAWING NO.: S-2



NOTES:

1. ALL CONCRETE PIPE TO BE ASTM C76 CLASS IV UNLESS OTHERWISE NOTED.
2. USE WATERTIGHT RUBBER GASKETS ASTM C443 IN ALL PIPE JOINTS.
3. DEPENDING ON THE LOCATION, HEAVY DUTY PLASTIC PIPE CAN BE SUBSTITUTED FOR CONCRETE PIPE WITH PERMISSION FROM THE CITY, AS LONG AS A CREDIT IS GIVEN TO THE CITY FOR THE NON-USE OF CONCRETE PIPE.

OSHA SAFETY STANDARDS ARE TO BE FOLLOWED AT ALL TIMES CONCERNING THE USE OF PROTECTIVE TRENCH BOXES

REV. NO.	DATE	ENGINEER	DESCRIPTION
REVISIONS			

City of New London, Connecticut

CITY OF NEW LONDON STANDARD DETAILS

SUBMITTED BY: JMH DATE: 03.06.2015
APPROVED BY: WJC DATE: 03.06.2015
FILENAME: TYP TRENCH.DWG

DRAWING TITLE: TYPICAL TRENCHING AND BACKFILLING DETAIL

1 OF 1
SHEET NO.: 14
DRAWING NO.: SD-1

OWNER:

CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:

DESMAN
Design Management

CIVIL ENGINEER:

Cabezas DeAngelis
ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:

SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15
NEW LONDON, CONNECTICUT

STATE OF CONNECTICUT
CHRISTIAN A. HOWELL
#PEN.0033
LICENSED
PROFESSIONAL ENGINEER

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	ARM
1 CITY COMMENTS	3-8-21	ARM

REVISIONS

DRAWING TITLE

CITY OF NEW LONDON TYPICAL DETAILS

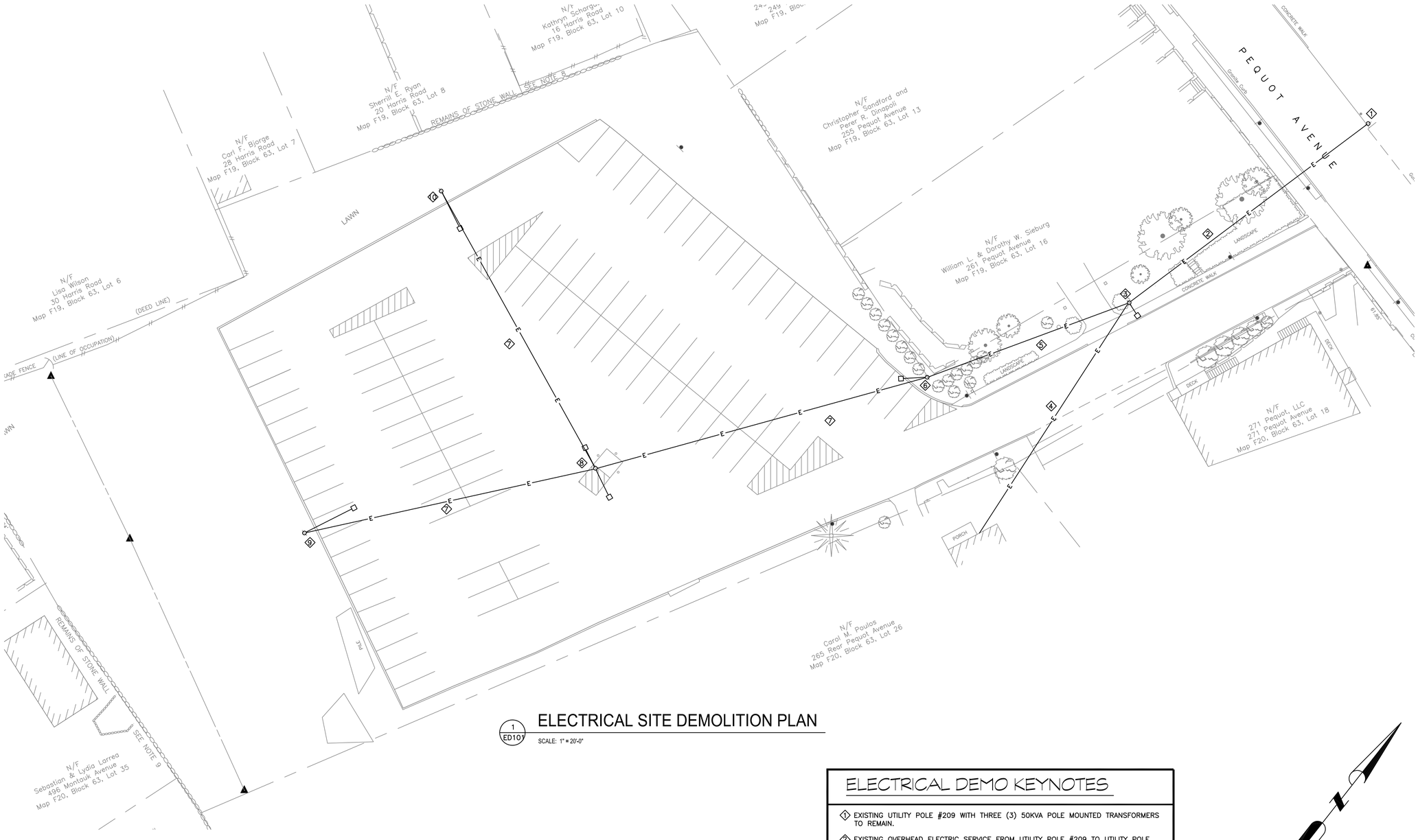
DRAWING NO.

C-8

SCALE: AS NOTED
DATE: FEBRUARY 8, 2021
CD PROJECT NO. 2020-40

DESIGN	DRAWN	CH'KD.
C.A.D.	A.R.M.	C.A.D.

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1 ED101 ELECTRICAL SITE DEMOLITION PLAN

SCALE: 1" = 20'-0"

ELECTRICAL DEMO KEYNOTES

1. EXISTING UTILITY POLE #209 WITH THREE (3) 50KVA POLE MOUNTED TRANSFORMERS TO REMAIN.
2. EXISTING OVERHEAD ELECTRIC SERVICE FROM UTILITY POLE #209 TO UTILITY POLE ON RIGHT SIDE OF ENTRANCE DRIVE TO REMAIN.
3. EXISTING UTILITY POLE AND ASSOCIATED LIGHT ARM TO REMAIN.
4. EXISTING OVERHEAD ELECTRIC SERVICE TO HOUSE TO BE REPLACED BY EVERSOURCE.
5. EXISTING OVERHEAD ELECTRIC FROM ENTRY DRIVE UTILITY POLE TO HELT POLE #10612 TO BE REPLACED BY EVERSOURCE.
6. EXISTING HELT POLE #10512 AND ASSOCIATED LIGHT ARM TO BE REMOVED. POLE TO BE REPLACED BY EVERSOURCE.
7. EXISTING OVERHEAD ELECTRIC FOR LIGHT POLES TO BE REMOVED.
8. EXISTING HELT POLE #10732 AND ASSOCIATED LIGHT ARMS TO BE REMOVED.
9. EXISTING HELT POLE #11556 AND ASSOCIATED LIGHT ARM TO BE REMOVED.
10. EXISTING HELT POLE #11555 AND ASSOCIATED LIGHT ARM TO BE REMOVED.

SCALE IN FEET
20 0 20 40

OWNER:

CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:

DESMAN
Design Management

CIVIL ENGINEER:

Cabezas DeAngelis
ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:

SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15
NEW LONDON, CONNECTICUT

NO.	DATE	BY
1 BID DOCUMENTS	3-30-21	GK
2 CITY COMMENTS	3-8-21	GK

REVISIONS

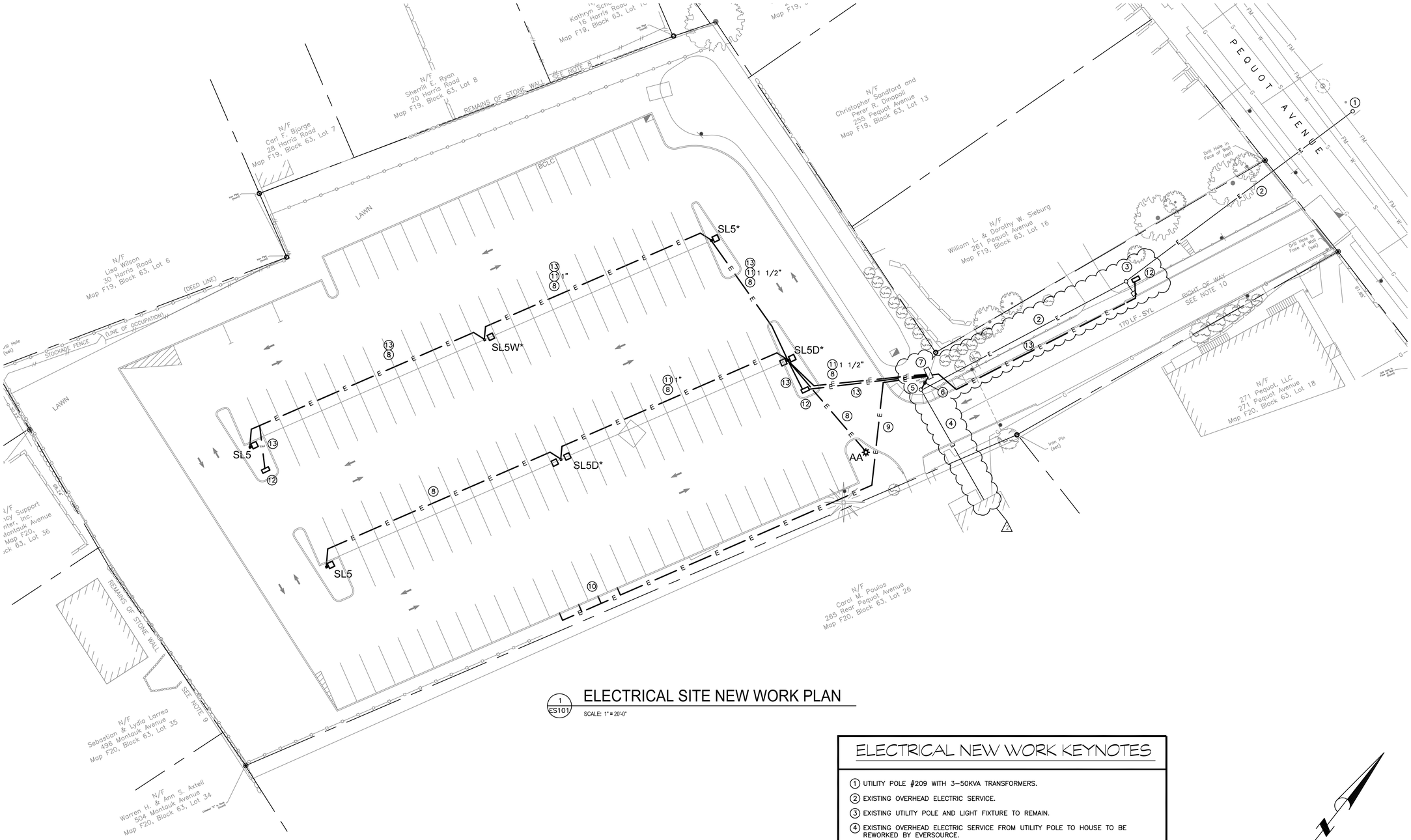
DRAWING TITLE
ELECTRICAL SITE DEMOLITION PLAN

DRAWING NO.
ED101

SCALE: AS NOTED
DATE: MARCH 30, 2021
DESMAN PROJECT NO. 20-20170.00-2

DESIGN	DRAWN	CH'KD.
G.K.	G.K.	R.R.B.

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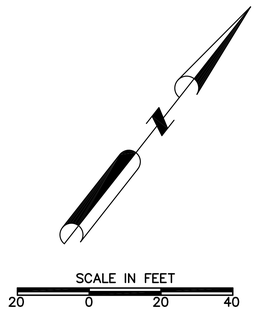


1 ES101 ELECTRICAL SITE NEW WORK PLAN

SCALE: 1" = 20'-0"

ELECTRICAL NEW WORK KEYNOTES

1. UTILITY POLE #209 WITH 3–50KVA TRANSFORMERS.
2. EXISTING OVERHEAD ELECTRIC SERVICE.
3. EXISTING UTILITY POLE AND LIGHT FIXTURE TO REMAIN.
4. EXISTING OVERHEAD ELECTRIC SERVICE FROM UTILITY POLE TO HOUSE TO BE REWORKED BY EVERSOURCE.
5. PROVIDE 4" RGS RISER ON UTILITY POLE FOR NEW BURIED ELECTRIC SERVICE TO METER CABINET. PROVIDE 4" RGS SWEEP AT BASE OF POLE. RISER TO BE INSTALLED ON PROTECTED SIDE OF UTILITY POLE.
6. BURIED 4" SCHEDULE 80 PVC CONDUIT FROM UTILITY POLE TO METER CABINET FOR NEW SECONDARY WIRING.
7. NEW METER CABINET WITH LOAD CENTER FOR SITE LIGHTING, CAR CHARGERS AND CAMERA EQUIPMENT. REFER TO DRAWING E201 FOR DETAILS.
8. BURIED 1" SCHEDULE 80 PVC CONDUIT FOR LIGHT POLE CIRCUITING.
9. BURIED 2" SCHEDULE 80 PVC CONDUIT FOR FUTURE VEHICLE CHARGING STATIONS.
10. PROPOSED LOCATION OF FOUR FUTURE VEHICLE CHARGING STATIONS.
11. BURIED EMPTY SCHEDULE 80 PVC CONDUIT FOR FUTURE CAMERA SIGNAL CABLE (SIZE AS NOTED). CONDUIT TO BE IN SAME TRENCH AS POWER.
12. PROPOSED LOCATION OF EMERGENCY CALL BOX.
13. BURIED EMPTY 1" SCHEDULE 80 PVC CONDUIT FOR EMERGENCY CALL BOX DATA CABLING AND 1" SCHEDULE 80 PVC CONDUIT FOR EMERGENCY CALL BOX POWER WIRING. CONDUITS TO BE IN SAME TRENCH AS POWER.



OWNER:

CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:

DESMAN
Design Management

CIVIL ENGINEER:

Cabezas DeAngelis
ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:

SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	GK
1 CITY COMMENTS	3-8-21	GK

REVISIONS

DRAWING TITLE

ELECTRICAL SITE NEW WORK PLAN

DRAWING NO.

ES101

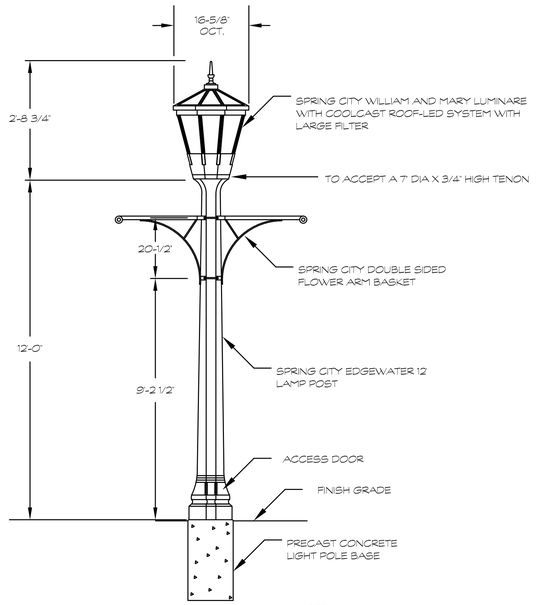
SCALE: AS NOTED

DATE: MARCH 30, 2021

DESMAN PROJECT NO. 20–20170.00–2

DESIGN	DRAWN	CH'KD.
G.K.	G.K.	R.R.B.

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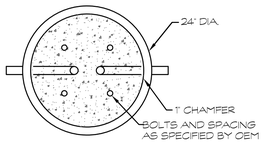
NOTE:

1. LUMINARIES SHALL BE FOCUSED TO ILLUMINATE THE MEDIAN.
2. BRACKET ARMS MOUNTING HEIGHT IS AN ESTIMATE.

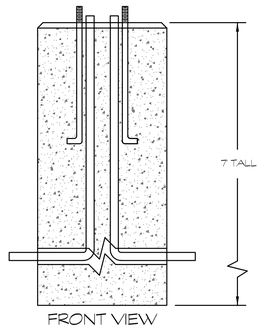
MANUFACTURER:	SPRING CITY LIGHTING
LUMINARE MODEL:	WILLIAM AND MARY
LUMINARE NO.:	ALMWML-LE040-EV1-X2-40-CN5-Y-PLO-FSA-CB
POLE MODEL:	EDGEWATER
POLE HEIGHT:	12
POLE NO:	DPSEDG-20-12.00-GPWI-CB
ACCESSORY:	FLOWER BRACKET
ACCESSORY NO.:	AABFLB-25-CM-CB
FINISH COLOR	CLASSIC BLACK

STREEETSCAPE LIGHT DETAIL

SCALE: NONE



TOP VIEW



FRONT VIEW

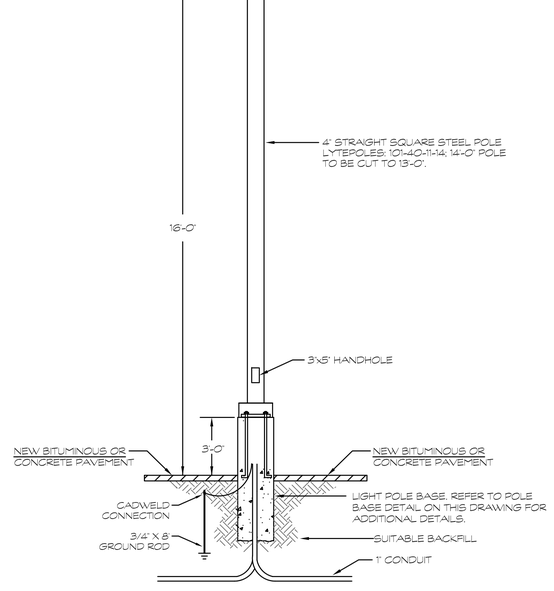
HEIGHT	WEIGHT
7'-0" TALL	~5,160 LBS

LIGHT POLE BASE DETAIL

SCALE: NONE

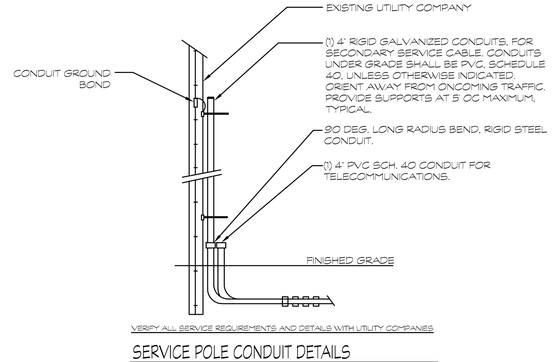
DESIGN NOTES:

1 - CONCRETE 4000 PSI AT 28 DAYS.
2 - REINFORCING IS AS SPECIFIED. (TYP. 4 - #5) VERTICALLY AND #3 STIRRUPS 12" O.C. HORIZONTALLY)
3 - ANCHOR BOLTS AND GROUNDING AS SPECIFIED.
4 - BALLAST POURED AROUND BASE IF REQUIRED.
5 - BOLT PROJECTION AS SPECIFIED BY POLE MANUFACTURER.



LIGHT POLE BASE DETAIL
POLE MOUNTED LUMINAIRE DETAIL

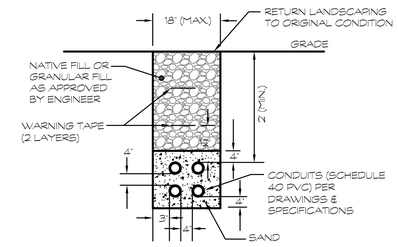
NOT TO SCALE



VERIFY ALL SERVICE REQUIREMENTS AND DETAILS WITH UTILITY COMPANIES

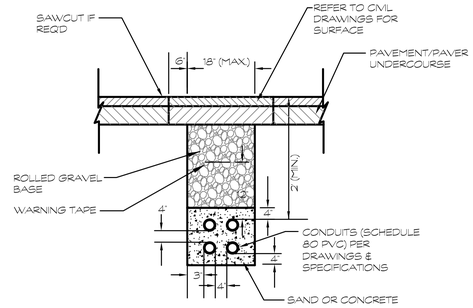
SERVICE POLE CONDUIT DETAILS

SCALE: NONE



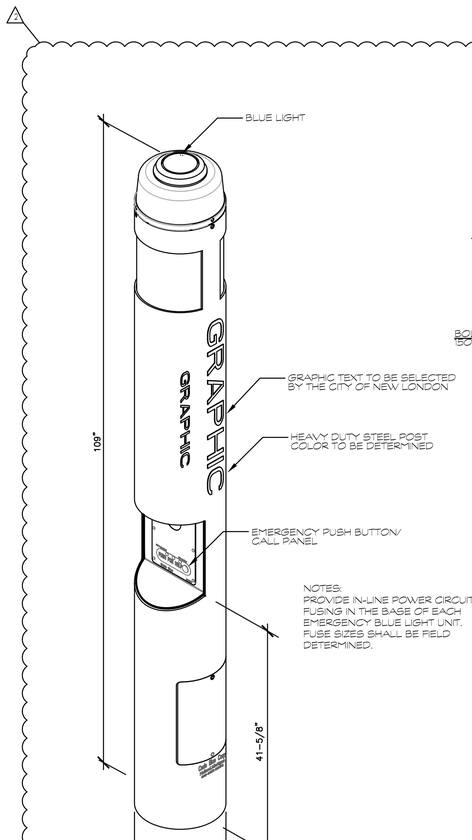
1 ES102 TYPICAL TRENCHING AND BACKFILLING DETAIL-UNPAVED

NOT TO SCALE



2 ES102 TYPICAL TRENCHING AND BACKFILLING DETAIL-PAVED

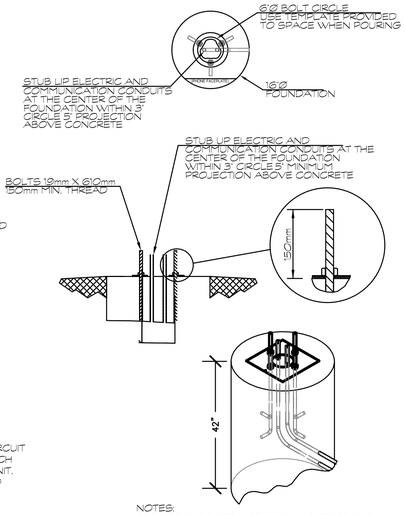
NOT TO SCALE



NOTES:
PROVIDE IN-LINE POWER CIRCUIT FUSING IN THE BASE OF EACH EMERGENCY BLUE LIGHT UNIT. FUSE SIZES SHALL BE FIELD DETERMINED.

BLUE LIGHT EMERGENCY TELEPHONE SYSTEM

N.T.S.



NOTES:
PROVIDE A CONCEALED 1/2" X 8' COPPER WELD GROUND ROD AND A CONCEALED #8 AWG COPPER GROUND CONDUCTOR AT EACH EMERGENCY BLUE LIGHT UNIT FOR GROUNDING. EXACT INSTALLATION DETAIL SHALL BE FIELD DETERMINED. ALL CONNECTIONS BELOW GRADE SHALL BE OF THE ISOTHERMIC (CADWELD) TYPE.

BLUE LIGHT EMERGENCY TELEPHONE SYSTEM FOUNDATION

N.T.S.

OWNER:

CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:

DESMAN Design Management

CIVIL ENGINEER:

Cabezas DeAngelis ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:

SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

NO.	DATE	BY
1 BID DOCUMENTS	3-30-21	GK
2 CITY COMMENTS	3-8-21	GK

REVISIONS

DRAWING TITLE
ELECTRICAL SITE DETAILS

DRAWING NO.
ES102

SCALE: AS NOTED
DATE: MARCH 30, 2021
DESMAN PROJECT NO. 20-20170.00-2

DESIGN	DRAWN	CH'KD.
G.K.	G.K.	R.R.B.

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SITE LIGHTING FIXTURE SCHEDULE

FIXT TAG	DESCRIPTION	MANUFACTURER/ MODEL NUMBER	LAMP				ELECTRICAL				NOTES
			TYPE	CRI	COLOR TEMP	NO	BALLAST/ DRIVER	VOLTAGE	WATTS	LUMENS	
SL5	POLE MOUNTED LED AREA LIGHT WITH TWO-PIECE DIE-CAST ALUMINUM HOUSING, LED BOARD WITH FULLY SHIELDED OPTICS AND BRONZE FINISH	GARDCO P26-64L-600-NW-G2-5-CS50	LED	80	4000K	---	DRIVER	120	114	17116	①
SL5W	SAME AS TYPE "SL5" ABOVE EXCEPT WITH FOUR MODULES, HIGHER DRIVE CURRENT AND WIDER OPTICS.	GARDCO P26-48L-700-NW-G2-5W-CS50	LED	80	4000K	---	DRIVER	120	101	14819	①
SL5D	SAME AS TYPE "SL5" ABOVE EXCEPT TWIN HEADS WITH FOUR MODULES, HIGHER DRIVE CURRENT AND WIDER OPTICS.	GARDCO P26-64L-600-NW-G2-5-CS50	LED	80	4000K	---	DRIVER	120	228	34232	①
AA	17" ROUND X 32.5" HIGH DECORATIVE POST TOP LED LUMINAIRE MOUNTED ON 12' SPRING CITY EDGEWATER POLE.	SPRING CITY WMM-LF040-2F2-40-CR3-YPLF	LED	80	4000K	---	DRIVER	120	40		

SITE LIGHTING SCHEDULE NOTES:

① SITE LIGHT POLE SHALL BE 13 FOOT, 4" SQUARE ALUMINUM POLE EQUAL TO LYTEPOLES 105-4012-14 WITH DARK BRONZE FINISH. POLES TO BE CUT TO 13' AND MOUNTED ON 24" ROUND X 36" CONCRETE BASES. POLES INDICATED WITH AN "*" AFTER THE FIXTURE DESIGNATION ON THE SITE PLAN ARE TO BE PROVIDED WITH A CAMERA MOUNTING BRACKET (CMB).

GENERAL ELECTRICAL NOTES

1. SPECIFICATION SECTIONS, GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS AND DRAWINGS ARE INTEGRAL PARTS OF CONTRACT DOCUMENTS.
2. SYSTEM COMPONENTS ARE LOCATED APPROXIMATELY ON SITE. BASE ACTUAL LOCATIONS ON FIELD VERIFICATION OF EXISTING CHARACTERISTICS.
3. ALL WORK AND ACTION DEPICTED AND DESCRIBED IN CONTRACT DOCUMENTS SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
4. REFERENCE TO SPECIFIC SUB-CONTRACTORS SUCH AS "ELECTRICAL", ETC. ARE INTENDED TO SUGGEST POSSIBLE DIVISION OF RESPONSIBILITY. PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND EXECUTION OF ALL WORK.
5. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTIONS.
6. ALL EQUIPMENT, MATERIALS AND RELATED SYSTEM COMPONENTS SHALL BE NEW UNLESS NOTED OTHERWISE.
7. REPAIR AND REPLACE AT NO COST TO OWNER ALL EQUIPMENT AND MATERIALS DAMAGED DURING CONSTRUCTION.
8. STUDY THE PROJECT MANUAL & DRAWINGS OF OTHER DISCIPLINES INCLUDING CIVIL.
9. CONDUIT ROUTES SHOWN ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO INDICATE THE EXACT ROUTE OF THE CONDUIT. COORDINATE ROUTING WITH EXISTING CONDITIONS AND UTILITY SERVICES. PVC CONDUITS SHALL BE SCHEDULE 80 UNDER PAVED SURFACES AND SCHEDULE 40 UNDER UNPAVED SURFACES UNLESS OTHERWISE NOTED.

ELECTRICAL LEGEND
(NOT ALL SYMBOLS ARE USED)

	SITE LIGHT POLE WITH TWIN HEADS
	SITE LIGHT POLE WITH SINGLE HEAD
	SITE LIGHT POLE WITH DECORATIVE HEAD
— E —	BURIED ELECTRICAL CONDUIT
	ELECTRICAL PANEL ENCLOSURE WITH UTILITY METER

OWNER:
CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:
DESMAN
Design Management

CIVIL ENGINEER:
Cabezas DeAngelis
ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:
SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	GK
1 CITY COMMENTS	3-8-21	GK

REVISIONS

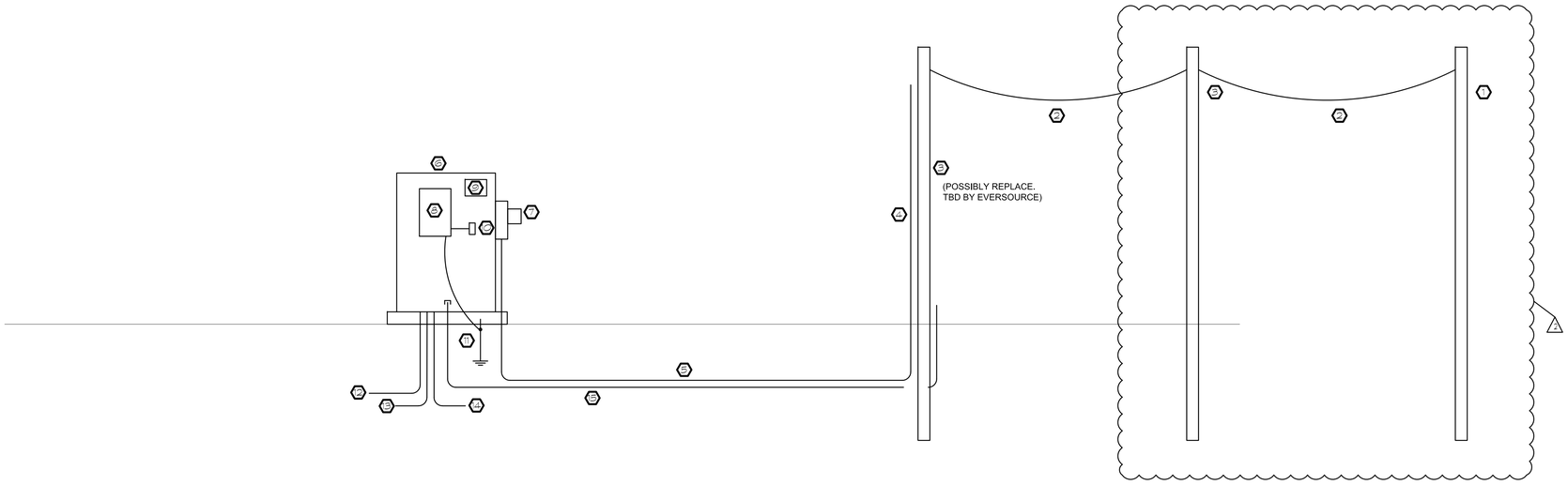
DRAWING TITLE
ELECTRICAL NOTES, SYMBOLS, SCHEDULES

DRAWING NO.
E200

SCALE: AS NOTED
DATE: MARCH 30, 2021
DESMAN PROJECT NO. 20-20170.00-2

DESIGN	DRAWN	CH'KD.
G.K.	G.K.	R.R.B.

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CONDUCTOR AND CONDUIT SIZING

NOTE	CIRCUIT BREAKER	CONDUCTOR (THHW) (1 PH, 2W) WITH GROUND	CONDUIT SIZE
1	20 AMP GFI	8 #12 & 4 #12 GND	1"
1A	20 AMP GFI	4 #12 & 2 #12 GND	1"
1B	20 AMP GFI	4 #12 & 2 #12 GND	1"
2	20 AMP GFI	4 #10, 4#12 & 2 #10, 2#12 GND	1"
2A	20 AMP GFI	4 #12 & 2 #12 GND	1"
2B	20 AMP GFI	4 #10 & 2 #10 GND	1"
3	20 AMP GFI	8 #10 & 4 #10 GND	1"
3A	20 AMP GFI	4 #10 & 2 #10 GND	1"
3B	20 AMP GFI	4 #10 & 2 #10 GND	1"

CONDUCTOR NOTES:

1. ALL VALUES BASED ON COPPER CONDUCTORS.
2. USE CONDUCTOR (THHW) (1PH, 2W) WITH GROUND FEEDER FOR OUTLETS.

ONE-LINE RISER DIAGRAM NOTES:

NTS

1. EXISTING UTILITY POLE #209 LOCATED ON PEQUOT AVE WITH THREE (3) 50KVA, POLE MOUNTED TRANSFORMERS.
2. EXISTING OVERHEAD ELECTRICAL SERVICE TO REMAIN OR BE REPLACED BY EVERSOURCE.
3. EXISTING UTILITY POLE ALONGSIDE ENTRANCE DRIVE TO REMAIN.
4. NEW 4" RGS RISER ON UTILITY POLE FOR NEW PARKING LOT SERVICE. RISER TO BE INSTALLED ON PROTECTED SIDE OF UTILITY POLE. PROVIDE 4" RGS SWEEP AT BASE OF POLE TO TRANSITION TO BURIED SCHEDULE 80 PVC CONDUIT.
5. BURIED 4" SCHEDULE 80 PVC CONDUIT FOR UTILITY COMPANY FEEDERS.
6. PROVIDE 60H"X48W"X24D", TWO DOOR, NEMA 4X, LOCKABLE STAINLESS STEEL ENCLOSURE WITH ALUMINUM BACKPLATE FOR NEW LOAD CENTER, TIMECLOCK AND OUTLET. ANCHOR BACKBOARD AS REQUIRED FOR SIESMIC LOAD.
7. PROVIDE 200A, RINGLESS METER SOCKET WITH 200A MAIN CIRCUIT BREAKER MOUNTED TO SIDE OF CABINET. SEAL METER SOCKET ON TOP AND BOTH SIDES.
8. SQUARE D 225A, 240/120V, 1ø, 3W, 200A MAIN LUG, 24 POLE PANEL "LP" FOR LIGHT POLES, EMERGENCY CALL BOXES, FUTURE CAMERAS AND FUTURE CAR CHARGING STATIONS.
9. PROVIDE SEVEN DAY ASTRONOMICAL TIMECLOCK FOR CONTROL OF PARKING LOT LIGHTS. PROVIDE BUTTON TYPE PHOTOCELL MOUNTED THROUGH THE ENCLOSURE FOR LIGHTING OVERRIDE. PHOTOCELL TO FACE NORTH.
10. GFI SERVICE RECEPTACLE MOUNTED INSIDE ENCLOSURE.
11. PROVIDE 5/8"ø X 10' LONG DRIVEN COPPER GROUND ROD FOR GROUNDING OF CONTACTOR SWITCH. GROUND PER NEC REQUIREMENTS. BOND GROUND CONDUCTOR TO ROD USING GROUND CLAMP.
12. PROVIDE 2#10 & 1#10G IN 3/4" SCHEDULE 80 PVC CONDUIT FROM PANEL "LP" FOR PARKING LOT LIGHTING CIRCUIT.
13. PROVIDE 1" SCHEDULE 80 PVC CONDUIT WITH CAT6 CABLE FROM ENCLOSURE TO EMERGENCY CALL BOX CABINETS FOR DATA AND 1" SCHEDULE 80 PVC CONDUIT WITH 3#10 AWG FROM ENCLOSURE TO EMERGENCY CALL BOX CABINETS FOR POWER.
14. PROVIDE 2" EMPTY SCHEDULE 80 PVC CONDUIT FROM PANEL "LP" TO LOCATION OF FUTURE VEHICLE CHARGING STATIONS CIRCUITS.
15. PROVIDE 2" EMPTY SCHEDULE 80 PVC CONDUIT FROM UTILITY POLE TO ENCLOSURE FOR FUTURE COMMUNICATIONS LINE.

2021-13 Marina Lot Improvements

OWNER:

CITY OF NEW LONDON
181 STATE STREET
NEW LONDON, CONNECTICUT

DESIGN COORDINATOR:

DESMAN Design Management

CIVIL ENGINEER:

Cabezas DeAngelis ENGINEERS & SURVEYORS

ELECTRICAL ENGINEER:

SILVER/PETRUCELLI+ASSOCIATES
Architects / Engineers / Interior Designers

REPAIRS AND IMPROVEMENTS AT THE MARINA PARKING LOT

PEQUOT AVENUE-MAP F20/BLOCK 53/LOT 15

NEW LONDON, CONNECTICUT

NO.	DATE	BY
2 BID DOCUMENTS	3-30-21	GK
1 CITY COMMENTS	3-8-21	GK

REVISIONS

DRAWING TITLE
ELECTRICAL NOTES & RISER DIAGRAM

DRAWING NO.
E201

SCALE: AS NOTED
DATE: MARCH 30, 2021
DESMAN PROJECT NO. 20-20170.00-2

DESIGN	DRAWN	CH'KD.
G.K.	G.K.	R.R.B.

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END OF GENERAL CONDITIONS AND SPECIFICATIONS

CITY OF NEW LONDON, CONNECTICUT

BID FORM

The following price quote is being submitted to the City of New London, Connecticut, for Repairs and Improvements at the Marina Parking Lot 2021-13, the cost of the project should include supplying all labor, material and equipment to perform the work as specified in **General Conditions & Bid Specifications, Repairs and Improvements at the Marina Parking Lot, New London, Connecticut.**

TOTAL BID PRICE (Unit Price, complete) $ _____

Total Written Price: _____

The undersigned certifies that he/she has read and understood all of the provisions of the Specifications. Any exceptions to the Specifications are noted below and/or on a separate sheet of paper and made a part of this bid. The undersigned also certifies that this bid is being submitted without collusion with any individual or corporation and agrees, by virtue of submitting this bid, that if accepted by the City of New London, this forms a contractual obligation on the part of the bidder to provide the material as bid.

SIGNATURE: _____

FOR: _____
(Bidder Name)

ADDRESS: _____

TOWN/CITY: _____ STATE: _____ ZIP: _____

BY: _____ DATE: _____
(Print Name & Title)

TEL NO. _____ _____ FAX NO: _____ _____
(Area Code) (Area Code)

EMAIL: _____

(CHECK ONE)
No exceptions to the Specifications _____
Exceptions taken as noted below _____ or on separate sheet of paper _____

City of New London

Department of Finance-Purchasing Agent
13 Masonic Street • New London, CT 06320 • Phone (860) 447-5215 • Fax (860) 447-5297

Anti-Fracking Provision

We _____ hereby submit a bid for materials, equipment and/or labor for the City of New London. The Bid is for bid documents titled **Bid No. 2021-13 Repairs and Improvements at the Marina Parking Lot**. We hereby certify under penalty of perjury that no natural gas waste or oil waste will be used by the undersigned bidder or any contractor, sub-contractor, agent or vendor agent in connection with the bid; nor will the undersigned bidder or any sub-contractor, agent or vendor agent thereof apply any natural gas waste or oil waste to any road or real property within the City of New London as a result of the submittal of this bid if selected.

_____ _____

DATE Signature of Authorized Signer

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____

_____

as Principal, and _____

a corporation duly organized under the laws of the State of _____as Surety are held and firmly bound unto the **City of New London, 181 State Street, New London, CT 06320,** hereinafter called the "Owner" in the sum of _____ _____Dollars ($_____), for the payment of which sum well and truly to be made, the said Principal and Surety, bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid dated _____ to

NOW THEREFORE, if the Owner shall accept the bid of the Principal and the Principal shall enter into a Contract with the Owner in accordance with the terms of such bid and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Owner the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____ 2021.

_____
(Principal) (Seal)

_____ _____
(Witness) (Title)

_____
(Surety) (Seal)

_____ _____
(Witness) (Title)

Attorney-in-Fact, State of _____, Power-of-Attorney for person signing for Surety Company must be attached to Bond.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____ certify that I am the _____ _____, of the Corporation named as Principal in the within bond; that _____ _____ who signed the said bond on behalf of the Principal was then the _____ _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

Affix
_____ Corporate
Seal

Title _____

LABOR AND MATERIAL PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____, as Principal

(hereinafter called Principal) and _____
as Surety, (hereinafter called Surety) are held and firmly bound unto _____
_____ as Obligee (hereinafter called Owner), for the use and benefit of claimants as hereinbelow defined;
in the amount of _____ Dollars ($_____) for the payment whereof the Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a Contract with the owner for _____

_____

_____
which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, the condition of this obligation is such that, if the said Principal shall promptly pay for all materials furnished and labor supplied or performed in the prosecution of the work included in and under the aforesaid Contract, whether or not the material or labor enters into and becomes a component part of the real asset, then this obligation shall be null and void otherwise it shall remain in full force and effect.

PROVIDED, that any alterations which may be made in the terms of the Contract or in the work to be done under it, or the giving by the Owner or any other forbearance on the part of either the Owner or the Principal to the other shall not in any way release the Principal and the Surety or either or any of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety for any such alterations, extension or forbearance being hereby waived.

Any party, whether a subcontractor or otherwise, who furnished materials or supplies or performs labor or services in the prosecution of the work under said Contract, and who is not paid therefore, may bring a suit on this Bond in the name of the person suing, prosecute the same to a final judgment and have the execution thereon for such sum as may be justly due.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this _____ _____ day of _____, 20___, the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

_____
(Corporate Principal)

_____

Attest:

_____
(Business Address)

_____ By

Affix
_____ Corporate
Seal

_____
(Corporate Surety)

_____

Attest:

_____
(Business Address)

_____ By

Affix
_____ Corporate
Seal

Countersigned
by _____

Attorney-in-Fact, State of _____, Power-of- Attorney for person signing for Surety Company must be attached to Bond.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That _____ as Principal, hereinafter called Contractor, and _____ as Surety, hereinafter called Surety, are held and firmly bound unto _____ as Obligee, hereinafter called Owner, in the amount of _____ _____ Dollars ($_____), for payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Contract has by written agreement dated _____ entered into a Contract with Owner for _____

_____

_____

which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, the condition of this obligation is such that, if Contractor shall promptly and faithfully perform said Contract, including such remedial work as may be required under the guaranty during the period of guaranty and shall certify in writing that all wages paid under said Contract to any mechanic, laborer or workman were equal to the rates or wages customary or then prevailing for the same trade or occupation in Connecticut, then this obligation shall be null and void, otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the Owner.

Whenever Contractor shall he, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default or shall promptly:

(1) Complete the Contract in accordance with its terms and conditions, by another Contractor acceptable to the Owner, said other Contractor to act as an agent for the Surety, or

(2) Obtain a Bid or Bids for submission to the Owner for completing the Contract in accordance with its terms and conditions, and upon determination by the Owner and Surety of the lowest responsible Bidder, arrange for a Contract as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price, but not exceeding, including, other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The terms "balance of the contract price" , as used in this paragraph, shall mean the total amount payable by the Owner to the Contractor under the Contract and any amendments thereto, less the amount properly paid by the Owner to the Contractor.

Unless otherwise required by law, any suit under this Bond must be instituted before the expiration of one (1) year from the date on which the guaranty period under the Contract expires.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Owner named herein or the heirs, executors, administrators and successors of the Owner.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals this _____ _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and these presents signed by its undersigned representative, pursuant to authority of its governing body.

No extension of time or other modification of this Bid Bond shall be valid unless agreed in writing by the parties to this Bond.

_____
(Corporate Principal)

_____

Attest: _____
(Business Address)

_____ By _____ Affix Corporate Seal

_____
(Corporate Surety)

_____

Attest: _____
(Business Address)

_____ By _____ Affix Corporate Seal

Countersigned
by _____

Attorney-in-Fact, State of _____, Power-of- Attorney for person signing for Surety Company must be attached to Bond.

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____ certify that I am the _____ _____, of the Corporation named as Principal in the within bond; that _____ _____ who signed the said bond on behalf of the Principal was then the _____ _____ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested to for and in behalf of said corporation by authority of this governing body.

_____ Affix Corporate Seal

Title _____

NON COLLUSION AFFIDAVIT OF PRIME BIDDER

State of _____)
) ss.
County of _____)

_____, being first duly sworn, deposes and say that:

(1) He is _____ of _____ herein referred to as the "Bidder" that has submitted the attached bid;

(2) He is fully informed respecting the preparation and content of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of New London, CT or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.

(6) That no officer or employee or person whose salary is payable in whole or in part from the City of New London is directly or indirectly interested in this Bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

Signed _____

Title _____

Subscribed and sworn before me this

_____ day of _____ 20____

_____
(Notary Public)

My Commission expires _____

NON COLLUSION AFFIDAVIT OF SUBCONTRACTOR

State of _____)
) ss.
County of _____)

_____, being first duly sworn, deposes and says that:

(1) He is _____ of _____ herein referred to as the "Subcontractor";

(2) He is fully informed respecting the preparation and content of the Subcontractor's Proposal submitted by the Subcontractor to _____, the Contractor for certain work in connection with the _____ Contract pertaining to the Project in New London, Connecticut;

(3) Such Subcontractor's Proposal is genuine and is not a collusive or sham Bid;

(4) Neither the said Subcontractors nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in said Subcontractor's Proposal or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of New London, CT or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties of interest, including this affiant.

(6) That no officer or employee or person whose salary is payable in whole or in part from the City of New London is directly or indirectly interested in this Bid, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

Signed _____

Title _____

Subscribed and sworn before me this

_____ day of _____ 20____

_____
(Notary Public)

My Commission expires _____

AFFIRMATIVE ACTION POLICY STATEMENT

(must be submitted on your firm's letterhead)

It has always been the policy and will continue to be the strong commitment of _____ _____ and all contractors and subcontractors who do business with this City to provide equal opportunities in employment to all qualified persons solely on the basis of job-related skills, ability and merit. _____will continue to take Affirmative Action to ensure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, national origin, ancestry, mental disorder (present or past history thereof), age, physical disability (but not limited to blindness), marital status, mental retardation, and criminal record. Such action includes, but is not limited to, employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation and selection for training including apprenticeship._____ _____, and its subcontractors will continue to make good faith efforts to comply with all federal and state laws and policies which speak to equal employment opportunity.

The principles of Affirmative Action are addressed in the 13th, 14th, and 15th Amendments of the United States Constitution, Civil Rights Act of 1866, 1870, 1871, Equal Pay Act of 1963, Title VI and VII of - the 1964 United States Civil Rights Act, Presidential Executive Orders 11246, amended by 11375, (nondiscrimination under federal contracts), Act I, Sections 1 and 20 of the Connecticut Constitution, Governor Grasso's Executive Order Number 11, Governor O'Neill's Executive Order Number 9, the Connecticut Fair Employment Practices Law (Sec. 46a-60-69) of the Connecticut General Statutes, Connecticut Code of Fair Practices (46a-70-81), Deprivation of Civil Rights (46a-58(a)(d)), Public Accommodations Law (46a-63-64), Discrimination against Criminal Offenders (46a-80), definition of Blind (46a-51(1)), definition of Physically Disabled (46a-51(15)), definition. of Mentally Retarded (46a-51(13)), cooperation with the Commission on Human Rights and Opportunities (46 - 77), Sexual Harassment (46a-60(a)-8), Connecticut Credit Discrimination Law (36-436 through 439), Title I of the State and Local Fiscal Assistance Act of 1972.

This Affirmative Action Policy Statement re-affirms my personal commitment to the principles of Equal Employment Opportunity.

_____ _____

DATE Signature of Authorized Signer

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 Part II, Section 203(b), (30 FR 12319, 12935). The implementing rules and regulations provide that any bidder or prospective contractor, or any of its proposed subcontractors, shall state whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name _____

Address and Zip Code _____

_____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

   Yes ( ) No ( ) If answer is yes, identify the most recent contract.

2. Compliance reports were required to be filed in connection with such contract or subcontract
   Yes ( ) No ( ) If answer is yes, identify the most recent contract.

3. Bidder has filed all compliance reports due under applicable instructions, including SF. 100.
   Yes ( ) No ( ) Not Required ( )

4. If answer to Item 3 is "No" please explain in detail on reverse side of this Certification.

Certification - The information above is true and complete to the best of my knowledge and belief. A willfully false statement is punishable by law (U.S. Code, Title 18, Section 1001).

_____
Name and Title of Signer (Please Type)

_____ _____
Signature Date

CERTIFICATION OF NON-SEGREGATED FACILITIES

This Bidder certifies that he does not maintain or provide his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any locations, under his control, where segregated facilities are maintained. The Bidder agrees that a breach of his certification will be a violation of the Equal Opportunity clause and any Contract resulting from acceptance of this Bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion or national origin, because of habit, local custom or otherwise. The Bidder agrees that (except where he has obtained identical certification from proposed Subcontractors for specific time periods) he will obtain identical certifications from proposed Subcontractors prior to the award of Subcontracts exceeding $10,000 which are not exempt form the provisions of the Equal Opportunity clause; that he will retain such certifications in his files; and that he will forward the following notice to such proposed subcontractors (except where the proposed subcontractors have already submitted identical certifications for the specific time periods):

> “Notice to prospective subcontractors of requirements for non-segregated facilities. A certification of non-segregated facilities must be submitted prior to the award of a subcontract exceeding the Equal Opportunity Clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e. quarterly, semi-annually, or annually).

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. Paragraph 1001.

Date: _____ By: _____

Official Address: _____ Title: _____

_____

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 Part II, Section 203(b), (30 FR 12319, 12935). The implementing rules and regulations provide that any bidder or prospective contractor, or any of its proposed subcontractors, shall state whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicated that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven (7) calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name _____

Address and Zip Code _____

_____

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.

   Yes ( ) No ( ) If answer is yes, identify the most recent contract.

2. Compliance reports were required to be filed in connection with such contract or subcontract
   Yes ( ) No ( ) If answer is yes, identify the most recent contract.

3. Bidder has filed all compliance reports due under applicable instructions, including SF. 100.
   Yes ( ) No ( ) Not Required ( )

4. If answer to Item 3 is "No" please explain in detail on reverse side of this Certification.

Certification - The information above is true and complete to the best of my knowledge and belief. A willfully false statement is punishable by law (U.S. Code, Title 18, Section 1001).

_____
Name and Title of Signer (Please Type)

_____ _____
Signature Date

CONTRACT FORMS

SAMPLE

CONTRACT FOR SERVICES

THIS AGREEMENT made and entered into this ***XX*** day of ***Month, 2021***, by and between ***(Legal Name, address, city & state)***, hereinafter called **"Contractor"** and the City of New London, 181 State Street, New London, CT 06320, hereinafter called **"City."**

WHEREAS, the City desires to enter into a contract for the ***(state work being performed)*** and the Contractor represents itself as competent and qualified to accomplish the specific requirements of this contract to the satisfaction of the City, therefore this contract is entered into under the following terms and conditions:

1. The Contractor agrees to perform the services described below or in attachments if applicable. Only those attachments specifically referenced in this Contract for Services shall apply. The terms and conditions as contained in this Contract for Services shall take precedence over any conflicting terms as may be attached hereto.

2. Term of the Contract: The start date for this Contract shall be ***Month/Day, 2021*** and the completion date of this Contract shall be ***Month/Day, 2021***, time being of the essence***.***

3. Contract Price: The City shall pay the Contractor for the performance of the Contract in current funds, for the total quantities of work performed for the price of ***(written amount) ($dollar amount)***.

Based upon Applications for Payment submitted by the Contractor, the City shall make progress payments on account of the Contract Sum to the Contractor. The period covered by each Application for Payment shall be one calendar month ending on the last day of the month. The City shall make payment to the Contractor within 30 days after the City receives the Application for Payment. With each Application for Payment, the Contractor shall submit the most recent schedule of values, which allocates the Contract Price among the various portions of the Work. The Applications for Payments shall indicate the percentage of completion of each portion of the Work. Such Applications may include requests for payment on account of changes in the Work, but not yet included in Change Orders. Partial payment shall be due Contractor in the amount of 95.0% of the work in place.

Final payment, constituting the entire unpaid balance of the Contract Price, including Change Orders, shall be made by the City to the Contractor no later than 30 days after the Contractor has fully performed the Contract and has provided to the Owner a final Application for Payment.

4. Contract Documents: The Contract Documents consist of this Agreement, the Standard Bid and Contract Terms and Conditions, the Instructions to Bidders, the Contractor's bid as accepted by the City, the General and Special Conditions of the Work, the Technical Specifications, the drawings and all Addenda attached hereto.

The Contract Documents are complementary and what is called for by any one shall be as binding as if called for by all. In the event of any conflict or inconsistency between the provisions of this Agreement and the provisions of any of the other Contract Documents, the provisions of the Agreement shall prevail.

Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the edition of the standard specification, manual, code or laws or regulations identified in the reference. In the event a particular edition is not identified, the reference shall mean the latest edition in effect at the time of receipt of the bid. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall change the duties and responsibilities of the City, the Contractor or any of their consultants, agents or employees from those set forth in the Contract Documents.

5. Obligations And Liability Of The Contractor: The Contractor shall do all the work and perform and furnish all the labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies and all other things (except as otherwise expressly provided herein) necessary and as herein specified for the proper performance and completion of the Work in the manner and within the time hereinafter specified, in strict accordance with the Drawings, Specifications and other Contract Documents, in conformity with the directions and to the satisfaction of the City, and at the prices herein agreed upon therefor.

All parts of the Work and all fixtures, equipment, apparatus and other items indicated on the Drawings and not mentioned in the Specifications, or vice versa, and all work and material usual and necessary to make the Work complete in all its parts, including all incidental work necessary to make it complete and satisfactory and ready for use and operation, whether

or not they are indicated on the Drawings or mentioned in the Specifications, shall be furnished and executed the same as if they were called for both by the Drawings and by the Specifications.

The Contractor shall coordinate his operations with those of any other contractors who may be employed on other work of the City, shall avoid interference therewith, and shall cooperate in the arrangements for storage of materials and equipment.

The Contractor shall conduct his work so as to interfere as little as possible with private business and public travel. Wherever and whenever necessary or required, he shall maintain fences, furnish watchmen, maintain lights, and take such other precaution as may be necessary to protect life and property.

The Contractor shall indemnify and save harmless the City and its officers, agents, servants and employees, from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, on account of bodily injury, sickness, disease or death sustained by any person or persons or injury or damage to or destruction of any property, directly or indirectly arising out of, relating to or in connection with the Work, whether or not due to or claimed to be due in whole or in part to the active, passive or concurrent negligence or fault of the Contractor, his officers, agents, servants or employees, any of his subcontractors, the City or any of their respective officers, agents, servants or employees and/or any other person or persons, and whether or not such claims, demands, suits or proceedings are just, unjust, groundless, false or fraudulent; and the Contractor shall and does hereby assume and agrees to pay for the defense of all such claims, demands, suits and proceedings, provided, however, that the Contractor shall not be required to indemnify the City, its officers, agents, servants, or employees, against any such damages occasioned solely by acts or omissions of the owner other than supervisory acts or omissions of the City in the Work.

The Contractor shall have complete responsibility for the Work and the protection thereof, and for preventing injuries to persons and damage to the Work and property and utilities on or about the Work, until final completion and final acceptance thereof. He shall in no way be relieved of his responsibility by any right of the City to give permission or directions relating to any part of the Work, by any such permission or directions given, or by failure of the City to give such permission or directions. The Contractor shall bear all costs, expenses, losses and damages on account of the quantity or character of the Work or the nature of the land (including but not limited to subsurface conditions) in or under or on which the Work is done being different from that indicated or shown in the Contract Documents or from what was estimated or expected, or on account of the weather, elements, or other causes unless information regarding such condition(s) was known and not disclosed by the City prior to Contractor commencing its work.

The Contractor shall conduct his operations so as not to damage existing structures or work installed either by him or by other contractors. In case of any such damage resulting from his operations, he shall repair and make good as new the damaged portions at his own expense with the consent of the damaged party. In the event that consent is not given, the Contractor shall continue liable for the damage caused.

The Contractor shall be as fully responsible to the City for the acts and omissions of his subcontractors, their officers, agents, servants and employees as he is for his own acts and omissions and those of his own officers, agents, servants and employees.

Should the Contractor sustain any loss, damage or delay through any act or omission of any other contractor or any subcontractor of any such other contractor, the Contractor shall have no claim against the City therefor, other than for an extension of time, but shall have recourse solely to such other contractor or subcontractor.

If any other contractor or any subcontractor of any such other contractor shall suffer or claim to have suffered loss, damage or delay by reason of the acts or omissions of the Contractor or of any of his subcontractors, the Contractor agrees to assume the defense against any such claim and to reimburse such other contractor or subcontractor for such loss or damage.

The Contractor agrees to and does hereby indemnify and save harmless the City from and against any and all claims by such other contractors or subcontractors alleging such loss, damage or delay and from and against any and all claims, demands, suits, proceedings, liabilities, judgments, awards, losses, damages, costs and expenses, including attorneys' fees, arising out of, relating to or resulting from such claims.

SAMPLE

The Contractor shall promptly pay all federal, state and local taxes which may be assessed against him in connection with the Work or his operations under this Agreement and/or the other Contract Documents, including, but not limited to, taxes attributable to the purchase of material and equipment, to the performance of services, and the employment of persons in the prosecution of the Work.

Because (i) anticipated damages hereunder are uncertain in amount and difficult to prove, (ii) the parties hereto wish to liquidate said damages in advance, and (iii) monies paid pursuant to this Agreement are not greatly disproportionate to the damage reasonably anticipated in the event of default, it is further agreed that if Contractor shall not complete all of its obligations under this contract within the time period and by the completion date specified in Paragraph 2 herein, Contractor shall pay liquidated damages to the City at a rate of $___100_____ per day for every day beyond the completion date until such time as the Contractor finally completes all of its obligations under this Contract.

6. Supervision Of Work: The Contractor shall be solely responsible for supervision of the Work, shall give the work the constant attention necessary to ensure the expeditious and orderly progress thereof, and shall cooperate with the City, its officers, agents or employees in every possible way.

At all times, the Contractor shall have as his agent on the Work a competent superintendent capable of reading and thoroughly understanding the Drawings and Specifications, with full authority to execute the directions of the Engineer without delay and to supply promptly such labor, services, materials, equipment, plant, apparatus, appliances, tools, supplies and other items as may be required. Such superintendent shall not be removed from the Work without the prior written consent of the City. If, in the opinion of the City, the superintendent or any successor proves incompetent, the Contractor shall replace him with another person approved by the City; such approval, however, shall in no way relieve or diminish the Contractor's responsibility for supervision of the Work.

Whenever the Contractor or his agent or superintendent is not present on any part of the Work where it may be necessary to give directions or instructions with respect to such work, such directions or instructions may be given by the City to and shall be received and obeyed by the foreman or any other person in charge of the particular work involved.

7. Insurance: The Contractor shall procure and maintain insurance of the types specified below, and to the limits for this insurance specified in the Standard Bid and Contract Terms and Conditions and the City of New London Code of Ordinances, Article IV., Section 2-71. All insurance shall be obtained from companies satisfactory to the City.

Insurance shall be in such forms as will protect the Contractor from all claims and liability for damages for bodily and personal injury, including accidental death, and for property damage, which may arise from operations under the Contract, whether such operations be by himself, his subcontractors, or by anyone directly or indirectly employed or engaged by him.

The following types of insurance shall be provided before starting and until final completion and acceptance of the Work and expiration of the guarantee period provided for in the Agreement.

a. Workmen’s Compensation and Employer’s Liability Insurance.

b. Bodily Injury Insurance for operations and completed operations and Contractor’s Protective Bodily Injury Insurance.

c. Property Damage Insurance for operations and completed operations and Contractor’s Protective Property Damage Insurance, each including coverage for injury to or destruction of wires or pipes and similar property and appurtenant apparatus and the collapse of or structural injury to any building or structure except those on which work under the Contract is being done. Blasting and explosion coverage shall be obtained if there is a need for blasting under the Contract, and no blasting shall be performed until such insurance has been secured.

d. Bodily Injury Insurance covering the operation of all motor vehicles owned by the Contractor.

e. Personal Injury Insurance to cover claims for personal injury and including claims brought by employees.

f. Property Damage Insurance covering the operation of all motor vehicles owned by the Contractor.

g. Insurance to cover bodily injuries and property damage resulting from the use of motor vehicles not owned by the Contractor, while such vehicles are being operated in connection with the prosecution of the Work.

SAMPLE

h. Contractual Liability Insurance covering the liability assumed by the Contractor under the fifth paragraph of that subsection titled “Obligations and Liability of Contractor” of this Agreement.

i. Owner’s Protective Liability and Property Damage Insurance to protect the City and any Engineer against claims for Property damage and for bodily injuries, including accidental death, caused by the operations of the Contractor or his subcontractors on the Work. The policy shall indicate the City and any Engineer as the named insured. A copy of the policy shall be furnished to the City and a Certificate of Insurance shall be furnished to any Engineer.

Any of the above coverages written on a claims made form have an Extended Reporting Period of three years from the termination of the contract.

All policies shall be so written that the owner will be notified in writing of cancellation or restrictive amendment at least 30 days prior to the effective date of such cancellation or amendment.

Certificates from the Contractor’s insurance carriers stating the coverages provided, the limits of liability, and expiration dates shall be filed in triplicate with the Engineer before operations are begun. Such certificates shall be on the form furnished by the Engineer.

The CITY requires that the aggregate limits be maintained by the CONSULTANT as required. It is the responsibility of the CONSULTANT or his representative to notify the CITY if ever or whenever claims reduce the General Aggregate below $1,000,000.

Renewal certificates must be furnished by the Contractor prior to the expiration date of any of the initial insurances.

No insurance required or furnished hereunder shall in any way relieve the Contractor of or diminish any of his responsibilities, obligations and liabilities under the Contract.

8. Contract: This Agreement, which includes all the Contract Document elements listed in paragraph 1 above, forms the Contract between the parties identified in the heading of this document. In the event that any provision of the Contract conflicts with any other provision of this Contract, the decision of the City will be final.

9. Funding and Fiscal Year Appropriations: Appropriations for expenditures by the City and authorization to spend for a particular purpose are ordinarily made on a fiscal year basis. The fiscal year of the City is the twelve (12) month period ending June 30 of each year. The obligations of the City under this Contract for the present or any subsequent fiscal year following the fiscal year in which this Contract is executed are subject to the appropriation of funds sufficient to discharge the City’s obligation, which accrues in this or any subsequent fiscal year. In the absence of such appropriation or authorization, this Contract shall be terminated immediately upon the Contractor’s receipt of notice to said effect without liability for damages, penalties or other charges arising from early termination. Expenditures for Contracted services that will extend beyond a single fiscal year shall not exceed in any fiscal year the amount appropriated and authorized for said fiscal year. The Contractor’s yearly costs, as contained herein, may not exceed the amount appropriated for said year.

10. Termination: The Contract may be terminated without cause by either party by giving written notice to the other at least thirty (30) calendar days prior to the effective date of termination stated in the notice. If Contractor fails to fulfill his obligations, the City may terminate this Contract by giving written notice to the Contractor at least seven (7) calendar days before the effective date of termination stated in the notice. The notice shall state the circumstances of the alleged breach and may state a period during which the alleged breach may be cured, which cure shall be subject to approval by the City.

11. Obligations in Event of Termination:

A. Upon termination, all finished or unfinished documents, data, studies, and reports prepared by the Contractor pursuant to this Contract, shall become the property of the City.

B. The City shall promptly pay the Contractor for all services performed to the effective date of termination, subject to indemnification provisions of Paragraph 5 hereof and subject to offset of sums due the Contractor against sums owed by the Contractor to the City.

12. Record keeping, Audit, and Inspection of Records: The Contractor shall maintain books, records and other compilations of data pertaining to the requirements of the Contract to the extent and in such detail as shall properly

SAMPLE

substantiate claims for payment under the Contract. All such records shall be kept for a period of six (6) years or for such longer period as is specified herein. All retention periods start on the first day after final payment under this Contract. If any litigation, claim, negotiation, audit or other action involving the records is commenced prior to the expiration of the applicable retention period, all records shall be retained until completion of the action and resolution of all issues resulting therefrom, or until the end of the applicable retention period, whichever is later. The Federal grantor agency, the State Auditor, the City, or any of their duly authorized representatives or designees shall have the right at reasonable times and upon reasonable notice, to examine and copy, at reasonable expense, the books, records, and other compilations of data of the Contractor which pertain to the provisions and requirements of this Contract. Such access shall include on-site audits, review, and copying of records.

13. Publicity, Publication, Reproduction and Use of Contract Products or Materials: Unless provided otherwise by law or the City, title and possession of all data, reports, programs, software, equipment, furnishings, and any other documentation or product paid for with City funds shall vest with the City at the termination of the Contract. The Contractor shall at all times obtain the prior written approval of the City before it, any of its officers, agents, employees or subcontractors, either during or after termination of the Contract, makes any statement bearing on the work performed or data collected under this Contract to the press or issues any material for publication through any medium of communication. If the Contractor, or any of its subcontractors, publishes a work dealing with any aspect of performance under the Contract, or of the results and accomplishments attained in such performance, the City shall have a royalty-free non-exclusive and irrevocable license to reproduce, publish or otherwise use and to authorize others to use the publication. The Contractor shall use reasonable means to inform the public that the City provides financial support for its operations and services by explicitly stating on publicity material, stationery, posters and other written materials, and on its premises the following: "This program is supported in part (in full) by the City of New London."

14. Assignment by Contractor and Subcontracting: The Contractor shall not assign or in any way transfer any interest in this Contract without the prior written consent of the City, nor shall he subcontract any services without the prior written approval of the City.

15. Connecticut Law: It is agreed that this contract shall be governed by, construed, and enforced in accordance with the internal laws of the State of Connecticut.

16. Venue: In the event of litigation, the parties do agree to be contractually bound to submit themselves to the personal jurisdiction of the state courts of Connecticut. The venue for any court proceeding shall be in the Superior Court for the Judicial District for New London at New London, Connecticut.

17. Waiver of Jury Trial: CONTRACTOR HEREBY EXPRESSLY WAIVES ANY AND ALL RIGHTS IT MAY HAVE TO TRIAL BY JURY OF ANY CLAIM, DEMAND, ACTION OR CAUSE OF ACTION (1) ARISING UNDER THIS AGREEMENT OR ANY OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH, OR (2) IN ANY WAY CONNECTED WITH OR RELATED OR INCIDENTAL TO THE DEALINGS OF THE PARTIES HERETO OR ANY OF THEM WITH RESPECT TO THIS AGREEMENT OR ANY OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH, OR THE TRANSACTIONS RELATED HERETO OR THERETO, IN EACH CASE WHETHER NOW EXISTING OR HEREAFTER ARISING, AND WHETHER SOUNDING IN CONTRACT OR TORT OR OTHERWISE; AND CONTRACTOR HEREBY AGREES AND CONSENTS THAT ANY SUCH CLAIM, DEMAND, ACTION OR CAUSE OF ACTION SHALL BE DECIDED BY COURT TRIAL WITHOUT A JURY, AND THE CITY MAY FILE AN ORIGINAL COUNTERPART OR A COPY OF THIS SECTION WITH ANY COURT AS WRITTEN EVIDENCE OF CONTRACTOR'S CONSENT TO THE WAIVER OF ITS RIGHT TO TRIAL BY JURY.

18. Nondiscrimination and affirmative action provisions, nondiscrimination provisions regarding sexual orientation, Executive Order Number Three and guidelines and rules, Executive Order Number Seventeen, Executive Order Number Sixteen and sexual harassment policy:

For the purposes of this article, the word "contractor" is substituted for and has the same meaning and effect as if it read "Contractor's name." Section A of this article is inserted in connection with subsection (a) of Section 4a-60 of the General Statutes of Connecticut, as revised. Section B of this article is inserted in connection with subsection (a) of Section 4a-60a of the General Statutes of Connecticut, as revised.

A. (a) For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Conn. Gen. Stat. Section

SAMPLE

32-9n; and “good faith” means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. “Good faith efforts” shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements.

For the purposes of this section, “Commission” means the Commission on Human Rights and Opportunities.

For the purposes of this section, “public works contract” means any agreement between any individual, firm, or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance, or guarantees.

(b) (1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut. The contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, mental retardation, or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved; (2) the contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an “affirmative action-equal opportunity employer” in accordance with regulations adopted by the Commission; (3) the contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission advising the labor union or workers’ representative of the contractor’s commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the contractor agrees to comply with each provision of this section and Conn. Gen. Stat. Sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to Conn. Gen. Stat. Sections 46a-56, 46a-68e, and 46a-68f; (5) the contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records, and accounts concerning the employment practices and procedures of the contractor as they relate to the provisions of this section and Conn. Gen. Stat. Section 46a-56. If the contract is a public works contract, the contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works project.

(c) Determination of the contractor’s good faith efforts shall include, but shall not be limited to, the following factors: The contractor’s employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(d) The contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(e) The contractor shall include the provisions of subsection (b) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor, or manufacturer unless exempted by regulations or orders of the Commission. The contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Conn. Gen. Stat. Section 46a-56; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(f) The contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

B. (a) (1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the contractor agrees to provide each labor union or representative

of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to Section 46a-56 of the Connecticut General Statutes; (4) the contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records, and accounts concerning the employment practices and procedures of the contractor that relate to the provisions of this section and Section 46a-56 of the Connecticut General Statutes.

(b) The contractor shall include the provisions of subsection (a) of this section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor, or manufacturer unless exempted by regulations or orders of the Commission. The contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Section 46a-56 of the Connecticut General Statutes; provided, if such contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(c) The contractor agrees to comply with the regulations referred to in this section as they exist on the date of this contract and as they may be adopted or amended from time to time during the term of this contract and any amendments thereto.

C. This contract is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill promulgated June 16, 1971, and, as such, this contract may be cancelled, terminated, or suspended by the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Three, or any State or federal law concerning nondiscrimination, notwithstanding that the State Labor Commissioner is not a party to this contract. The parties to this contract, as part of the consideration hereof, agree that said Executive Order No. Three is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the State Labor Commissioner shall have continuing jurisdiction in respect to contract performance in regard to nondiscrimination, until the contract is completed or terminated prior to completion.

The contractor agrees, as part consideration hereof, that this contract is subject to the Guidelines and Rules issued by the State Labor Commissioner to implement Executive Order No. Three, and that he will not discriminate in his employment practices or policies, will file all reports as required, and will fully cooperate with the State of Connecticut and the State Labor Commissioner.

D. This contract is subject to the provisions of Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, and, as such, this contract may be cancelled, terminated, or suspended by the contracting agency or the State Labor Commissioner for violation of or noncompliance with said Executive Order No. Seventeen, notwithstanding that the State Labor Commissioner may not be a party to this contract. The parties to this contract, as part of the consideration hereof, agree that Executive Order No. Seventeen is incorporated herein by reference and made a part hereof. The parties agree to abide by said Executive Order and agree that the contracting agency and the State Labor Commissioner shall have joint and several continuing jurisdiction in respect to contract performance in regard to listing all employment openings with the Connecticut State Employment Service.

E. This contract is subject to the provisions of Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, and, as such, the contract may be canceled, terminated, or suspended by the State for violation of or noncompliance with said Executive Order No. Sixteen. Executive Order No. Sixteen is attached hereto and made a part hereof. The parties agree to comply with such executive order. In addition, the contractor agrees to include a copy of Executive Order No. Sixteen, and the requirement to comply with said executive order, in all contracts with its contractors, subcontractors, consultants, sub-consultants, and vendors.

F. This contract is subject to the provisions of the City of New London Sexual Harassment Policy ("Policy") and, as such, the contract may be canceled, terminated, or suspended by the City in the event that the contractor, its employees, contractors, subcontractors, consultants, sub-consultants, or vendors engages in behavior prohibited by the provisions of the Policy (a copy of the Policy is attached hereto). The contractor agrees to include a copy of the Policy, and the requirement to prevent behavior as defined in such Policy, in all contracts with its contractors, subcontractors, consultants, sub-consultants, and vendors.

SAMPLE

19. Force Majeure: Neither party shall be liable to the other or be deemed to be in breach of this Contract for any failure or delay in rendering performance arising out of causes beyond its reasonable control and without its fault or negligence. Such causes may include, but are not limited to, acts of God or of a public enemy, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather. Dates or times of performance shall be extended to the extent of delays excused by this section, provided that the party whose performance is affected notifies the other promptly of the existence and nature of such delay.

20. Compliance with Laws and Indemnification of the City of New London: The Contractor shall comply with all applicable laws, rules, regulations, ordinances, orders or requirements of the State of Connecticut and any governmental authority relating to the delivery of the services specified in this Contract. The City may require the Contractor to pay fines, penalties, and damages that may arise out of or may be imposed because of, the
Contractor's breach or failure to comply with the provisions of this Contract. Unless otherwise provided by law the Contractor shall indemnify and hold harmless the City, its agents, officers and employees against any and all liability, loss, damages, penalties, costs or expenses for personal injury or damage to real or tangible personal property which the City may sustain, incur or be required to pay resulting from, arising out of, or in connection with the services performed or delivered under this Contract by reason of acts, inactions, omissions, negligence, reckless or intentional misconduct of the Contractor, its agent(s), officers, employees or subcontractors; provided that the Contractor is notified of any claim within a reasonable time after the City becomes aware of it, and the Contractor is afforded an opportunity to participate in the defense of such claim. In such event, no negotiated settlement agreement shall be binding on the Contractor without the Contractor's concurrence.

21. Waivers And Severability: All conditions, covenants, duties and obligations contained in this Contract can be waived only by written agreement. Forbearance or indulgence in any form or manner by a party shall not be construed as a waiver, nor in any way limit the legal or equitable remedies available to that party. A waiver or breach of any term, condition, or covenant by a party shall not constitute a waiver or breach of any other term, condition or covenant. If any court of competent jurisdiction declares a provision of this Agreement invalid, illegal, or otherwise unenforceable, the remaining provisions of the Agreement shall remain in full force and effect.

22. Amendments: No amendment to this Contract shall be effective unless it is signed by authorized representatives of both parties and complies with all other regulations and requirements of law.

23. Entire Agreement: The parties understand and agree that this Contract and attachments (if any), which includes all Contract Documents, supersede all other verbal and written agreements and negotiations by the parties relating to the services under this Contract.

24. Notice: Unless otherwise specified in an attachment hereto, any notice hereunder shall be in writing addressed to the persons and addresses indicated in the caption of this Contract on page 1.

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be executed in two (2) original copies on the day and year first above written.

OWNER:

_____
Michael Passero
Its Mayor

CONTRACTOR:

_____
Its Duly Authorized Agent

Approved as to form:

_____
Jeffrey T. Londregan, Esq., Director of Law

Date Signed _____

SAMPLE