New Police Headquarters

Category:	Fire and Police Stations	Project ID #:	1004144723
Street Address:	725 Bedford St Stamford CT 06901	Staff Estimate Value	$35,000,000.00
County:	Fairfield	Stage:	Biddate Set
Bid Date:	10/4/2016 , 11:00PM		
Architect:	Jacunski Humes Architects, LLC		
Documents Available:	Plans, Specs available in Insight		
Last Update:	9/1/2016	Plans,Specs were Added/Updated	

Notes

Details

[Division 2]: Clearing, Dewatering, Shoring, Earthwork, Grading, Slope Protection & Erosion Control, Marine Work, Paving & Surfacing, Water Systems, Sewerage & Drainage, Electric Power Transmission, Landscaping. [Division 3]: Concrete Formwork, Concrete Reinforcement, Structural Concrete, Architectural Concrete, Structural Precast Concrete, Architectural Precast Concrete. [Division 4]: Clay Unit Masonry. [Division 5]: Structural Steel, Metal Decking, Metal Fabrications, Expansion Joints. [Division 6]: Finish Carpentry. [Division 7]: Waterproofing, Insulation, Exterior Insulation & Finish Systems, Fireproofing, Firestopping, Shingles, Skylights. [Division 8]: Metal Doors, Wood Doors, Entrances & Storefronts, Metal Windows, Hardware, Glass & Glazing, Curtain Walls. [Division 9]: Ceiling Suspension Systems, Stucco, Drywall/Gypsum, Tile, Acoustical Ceilings, Resilient Flooring, Carpet, Painting. [Division 10]: Visual Display Boards, Compartments & Cubicles, Louvers & Vents, Wall & Corner Guards, Interior Signs, Lockers, Protective Covers, Partitions, Operable Partitions, Toilet & Bath Accessories. [Division 11]: Audio-Visual Equipment, Fluid Waste Treatment/Disposal Equipment, Food Service Equipment, Laboratory Equipment. [Division 12]: Manufactured Casework, Window Treatment. [Division 13]: Ground Storage Tanks, Underground Storage Tanks. [Division 14]: Elevators, Moving Stairs & Walks, Vehicle Lifts, Material Handling Systems, Hoists & Cranes. [Division 15]: Mechanical Insulation, Fire Protection Systems, Plumbing Piping, Plumbing Fixtures, Water Heaters, Hydronic Piping, HVAC Pumps, Boilers, Cooling Towers, Packaged A/C Units, Air Handling, Ductwork, Testing & Balancing. [Division 16]: Service/Distribution, Interior Lighting, Exterior Lighting, UPS Systems, Standby Power Generator Systems, Lightning Protection Systems, Alarm & Detection Systems, Voice & Data Systems, Public Address Systems, Television Systems, Electric Heating Cables & Mats.

Additional Details

Listed On:	8/30/2016	Floor Area:	94,245Square Feet
Contract Type:		Work Type:	New
Stage Comments 1:		Floors Below Grade:	1
Stage Comments 2:		Owner Type:	City
Bid Date:	10/4/2016	Mandatory Pre Bid Conference:	
Invitation #:	S-6555	Commence Date:	11/4/2016
Structures:	1	Completion Date:	
Single Trade Project:		Site Area:	
Floors:	3	LEED Certification Intent:	
Parent Project ID:		Units:	
Parking Spaces:			

Project Participants

Company Role	Company Name	Contact Name	Address	Phone	Email	Fax
Architect	Jacunski Humes Architects, LLC		15 Massirio Dr. Ste. 101, Berlin, CT 06037			(860) 828-9223
Mechanical and Electrical Engineer	Kohler Ronan, LLC		93 Lake Ave , Danbury, CT 06810		krce@kohlerronan.com	(203) 778-1018
Civil Engineer	Redniss & Mead	Cesar Polonia	22 First St. , Stamford, CT 06905	(203) 327-0500		(203) 357-1118
Structural Engineer	BVH Integrated Services , Inc.	Jeff Davis	50 Griffin Road S. , Bloomfield, CT 06002	(860) 286-9171		(860) 242-0236
Owner	City of Stamford - Purchasing Department	Jeff Pardo	888 Washington Blvd. 10th Fl., Stamford, CT 06901	(203) 977-4317	jpardo@stamfordct.gov	(203) 977-5253

Bidders

Company Name	Added Date	Address	Phone	Email	Bidding Role	Bid Rank	Bid Value	Fax Number

O & G Industries, Inc. - Corporate Headquarters	8/31/2016	112 Wall St. , Torrington, CT 06790	(860) 489-9261		General Contractor			(860) 626-6436
Giordano Construction Co, Inc	8/30/2016	1155 Main Street P.O. Box 802, Branford, CT 06405	(203) 488-7264		General Contractor			(203) 481-5764

Buyer Activity Report

Status	Activity Level	Contact	Company Name	Source	Phone	Email	Business Type	Trades	Last Active
New		Luann Maraglino	Triad Construction Services LLC	bidclerk	(203) 584-9450	Bidding@triad-serv.com	Subcontractor	Plumbing, Plumbing Piping and Pumps, Plumbing Equipment, Plumbing Fixtures, Gas and Vacuum Systems f...	8/31/2016
New		Kathleen Petonito	Construction Materials Inc	CONSTRUCTION DATA	(203) 287-1742	kathleen@construction materials-ct.com	Supplier	Product Requirements, Concrete, Concrete Forming and Accessories, Cast-in-Place Concrete, Masonry, P...	8/31/2016
New		Robin Marshalow	C T Materials Testing Lab Inc	CONSTRUCTION DATA	(203) 838-6978	robinm@cmtlinc.com	Engineer	Concrete, Concrete Forming and Accessories, Concrete Reinforcing, Cast-in-Place Concrete, Concrete P...	8/31/2016
New		Habib Chaudhary	Tri State Materials Testing Lab Llc	CONSTRUCTION DATA	(203) 949-7733	habibc@tristate-testing.com	Service Provider	Concrete, Concrete Forming and Accessories, Concrete Reinforcing, Cast-in-Place Concrete, Concrete P...	8/31/2016
New		Geoff Frazier	STS Steel Inc	CMD Insight	(518) 370-2693	geoff@stssteel.com	Subcontractor	Metals, Structural Metal Framing, Metal Joists, Metal Decking	8/30/2016
New		Jim Kinch	S R S Petroleum Services Llc	CONSTRUCTION DATA	(781) 589-7434	jkinch@srspetroleum.com	Subcontractor	Assessment, Subsurface Investigation, Site Remediation, Contaminated Site Material Removal, Facility...	8/30/2016
New		Reade Moorman	Special Testing Laboratories, Inc.	bidclerk	(203) 743-7281	readem@specialtesting.net	Engineer	Quality Requirements, Subsurface Investigation, Concrete, Concrete Forming and Accessories, Concrete...	8/30/2016
New		Tanveer Devji	Visual Citi Inc		631-482-3030	tanveer@visualciti.com	Subcontractor	Specialties, Chalkboards, Markerboards	8/31/2016

								and Tackboards, Display Cases, Directories and Plaques, Traff...	
New		Tina Smith	Hollman Inc-191327911	Insight	972815-4000	tina@hollman.com	Supplier	Specialties, Chalkboards, Markerboards and Tackboards, Display Cases, Directories and Plaques, Traff...	8/31/2016
New		Ahmed Riaz	Air Control Services	Insight	(914) 668-2003	dialacs@aol.com	Subcontractor	Heating, Ventilating, and Air-Conditioning (HVAC), Facility Fuel Systems, HVAC Piping and Pumps, HVA...	8/30/2016
New		sal monarca	fmonarcamasonry	bidclerk	(860) 883-6161	smonarca@fmonarcamasonry.com	Subcontractor	Masonry, Unit Masonry, Stone Assemblies, Refractory Masonry, Corrosion-Resistant Masonry, Manufactur...	8/31/2016
New		Chantea l Clement	INDOOR AIR TECHNOLOGIES	Insight	585-924-2010	chanteal@iatcorpusa.com	Subcontractor	Heating, Ventilating, and Air-Conditioning (HVAC), Facility Fuel Systems, HVAC Piping and Pumps, HVA...	8/31/2016
New		Jeff santopietro	All About Services	CONSTRUCTION DATA	(203) 755-4656	jeffsantopietro@nvlm.biz	Subcontractor	Demolition and Structure Moving, Site Remediation	8/31/2016
New		Linda Cox	The G-S COMPANY–166334317	Insight	410-284-9549	lindac@g-sco.com	Supplier	Specialties, Chalkboards, Markerboards and Tackboards, Display Cases, Directories and Plaques, Traff...	8/31/2016
New		Bill Cote	Environmental Systems Corp. (ESC)	iSqFt	(860) 953-8800	b.cote@esccontrols.com	Subcontractor	Heating, Ventilating, and Air-Conditioning (HVAC)	8/31/2016
New		Amber Castelvecchi	Florida Detention Systems	Insight	(352) 475-5391	amber@floridadetention.com	Subcontractor	Special Construction, Special Facility Components, Fountains, Special Purpose Rooms, Special Structu...	8/31/2016

New		Gerard Keough	Security Solutions Inc	bidclerk	(203) 846-8466	gkeough@securitysolutionsinc.com	Service Provider	Fire Protection Specialties	8/31/2016
New		Luigi Torchi	Laborers International Union	CONSTRUCTION DATA	(617) 479-4275	ltorchia@lnerof.org	Other	General Requirements, Summary, Price and Payment Procedures, Administrative Requirements, Survey and...	8/31/2016
New		Butch Davidson	Roofers & Waterproofs Local 12	CONSTRUCTION DATA	(203) 772-2565	rooferslocal12@ymail.com	Other	Thermal and Moisture Protection, Dampproofing and Waterproofing, Thermal Protection, Steep Slope Roo...	8/31/2016
New		Angela Clark	Gold Seal Roofing & Sheet Metal	CONSTRUCTION DATA	(860) 484-8430	aclark@gsroofs.com	Subcontractor	Thermal and Moisture Protection, Dampproofing and Waterproofing, Thermal Protection, Exterior Insula...	8/31/2016
New		Lucien Cance	Windsor Sanitation Inc.	CONSTRUCTION DATA		lucienc@windsorsanitation.com	Service Provider	General Requirements, Summary, Price and Payment Procedures, Administrative Requirements, Survey and...	8/31/2016
New		Marty Ryback	R & L Estimating Services	CONSTRUCTION DATA	(561) 361-0088	rlestimate@aol.com	Service Provider	General Requirements, Summary, Temporary Facilities and Controls, Concrete, Concrete Forming and Acc...	8/31/2016
New		Steve Mullan	Turnkey Lumber Corporation	bidclerk	(978) 798-1370	steve@turnkeylumber.biz	Supplier	Wood, Plastics, and Composites, Rough Carpentry	8/31/2016
New		Phil Coraccio	CSI Pipe LLC	CONSTRUCTION DATA	(860) 564-9000	pcoraccio@csipipe.com	Supplier	Earthwork, Site Clearing, Earth Moving, Earthwork Methods, Shoring and Underpinning, Excavation Supp...	8/31/2016
New		Mason Guarino	South Shore Gunite Pool & Spa	bidclerk	(781) 480-7040	mguarino@southshoregunitepools.com	Subcontractor	Dam Construction and Equipment	8/31/2016
New		steve bradbury	Telserv Llc	CONSTRUCTION DATA	(860) 740-3640	SBRADBURY@TELSERV.COM	Service Provider	Existing Conditions, Assessment, Subsurface Investigation, Demolition and Structure	8/30/2016

								Moving, Site Rem...	
New		Aqil Unia	Visual Citi Inc	Insight	631-482-3030	aqil@visualciti.com	Subcontractor	Utilities, Water Utilities, Wells, Sanitary Sewerage Utilities, Storm Drainage Utilities, Ponds and ...	8/30/2016
New		Kevin Collins	Door Control Inc.	bidclerk	(203) 269-8282	collinskp@sbcglobal.net	Subcontractor	Openings, Doors and Frames, Specialty Doors and Frames, Entrances, Storefronts, and Curtain Walls, H...	8/30/2016
New		Tim Morse	Acadia	CONSTRUCTION DATA	(508) 263-2576	TIMOTHY.MORSE@ACADIA-INS.COM	Other	General Requirements, Summary, Price and Payment Procedures, Administrative Requirements, Survey and...	8/30/2016
New		Arnold Foster	Northeast Building Supply	bidclerk	(203) 366-4757	af1452@aol.com	Supplier	General Requirements, Summary, Price and Payment Procedures, Administrative Requirements, Survey and...	8/30/2016
New		Michael Brault	Colossale Concrete	CONSTRUCTION DATA	(860) 223-3179	CCI_Estimating@snet.net	Subcontractor	Site Remediation, Contaminated Site Material Removal, Concrete Forming and Accessories, Concrete Rei...	8/30/2016
New		Douglas Gray	Amsterdam Hotel	CONSTRUCTION DATA	(203) 327-4300	DRGRAY@AMSTERDAMHOTELCT.COM	Other	General Requirements, Summary, Price and Payment Procedures, Administrative Requirements, Survey and...	8/30/2016
New		MIKE GARNEAU	W.J. Mountford Co.	iSqFt	(860) 291-9448	mgarneau@wjmountford.com	Subcontractor	Cast-in-Place Concrete	8/30/2016
New		Elizabeth Kelly	Boston Carpenters Local 107	CONSTRUCTION DATA	(508) 881-1885	ekelly@necmp.org	Other	Contaminated Site Material Removal, Concrete, Concrete Forming and Accessories, Concrete Reinforcing...	8/30/2016
New		Dave Romaine	Center Earth	iSqFt	(203) 780-8433	dromaine@centerearth.com	Subcontractor	Concrete, Concrete Forming and	8/30/2016

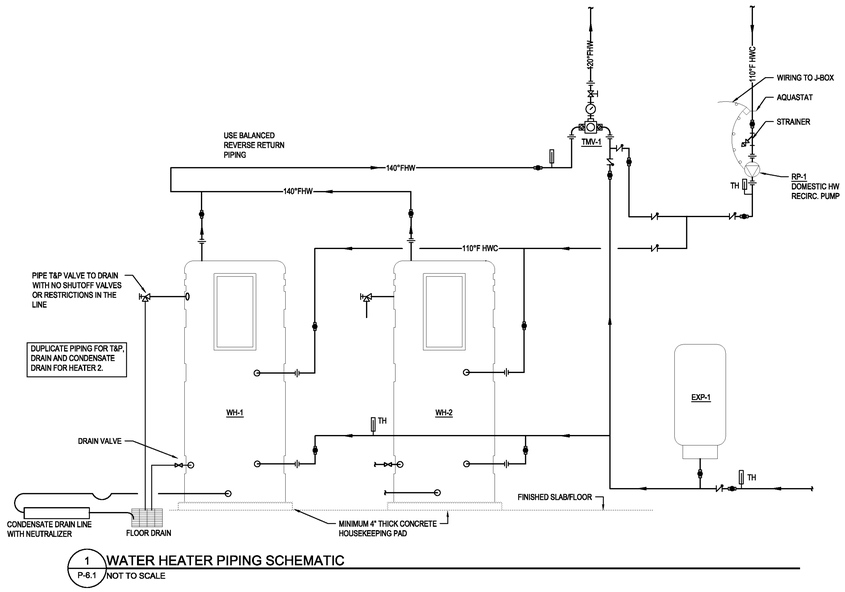
								Accessories, Concrete Reinforcing, Cast-in-Place Concrete, Post-Tensi...	
New		Victor Conklin	Kne Corporation	CONSTRUCTION DATA	(781) 762-8344	victor@knecorp.com	Subcontractor	Openings, Doors and Frames, Specialty Doors and Frames, Access Doors and Panels, Coiling Doors and G...	8/30/2016
New		Bill Bernhardt	Ccm Construction Services	CONSTRUCTION DATA	(561) 969-2911	bbernhardt@ccmconstructionservice.com	Subcontractor	Thermal and Moisture Protection, Dampproofing and Waterproofing, Steep Slope Roofing, Roofing and Si...	8/30/2016
New		Terry T	Mid-state Mason	CONSTRUCTION DATA		terrytmidstate@sbcglobal.net	Subcontractor	Masonry, Unit Masonry, Stone Assemblies, Refractory Masonry, Corrosion-Resistant Masonry, Manufactur...	8/30/2016
New		Cornelio Soto	Armor-tite Construction Corp	CONSTRUCTION DATA	(914) 937-7134	soto@armor-tite.com	Subcontractor	Masonry, Unit Masonry, Stone Assemblies, Refractory Masonry, Corrosion-Resistant Masonry, Manufactur...	8/30/2016
New		Priscilla Lasky	Donnegan Systems	CONSTRUCTION DATA	(508) 393-5700	plasky@donnegan.com	Supplier	Equipment, Special Construction	8/30/2016
New		Michael Vettorino	Vamco Sheet Metal	CONSTRUCTION DATA	(845) 265-4563	michael@vamcosm.com	Subcontractor	Heating, Ventilating, and Air-Conditioning (HVAC), Facility Fuel Systems, HVAC Piping and Pumps, HVA...	8/30/2016
New		Evan Cohen	Aercon Corporation	CONSTRUCTION DATA	(203) 271-3386	EVAN@AERCONCORP.COM	Supplier	Heating, Ventilating, and Air-Conditioning (HVAC), Facility Fuel Systems, HVAC Piping and Pumps, HVA...	8/30/2016

Contracts

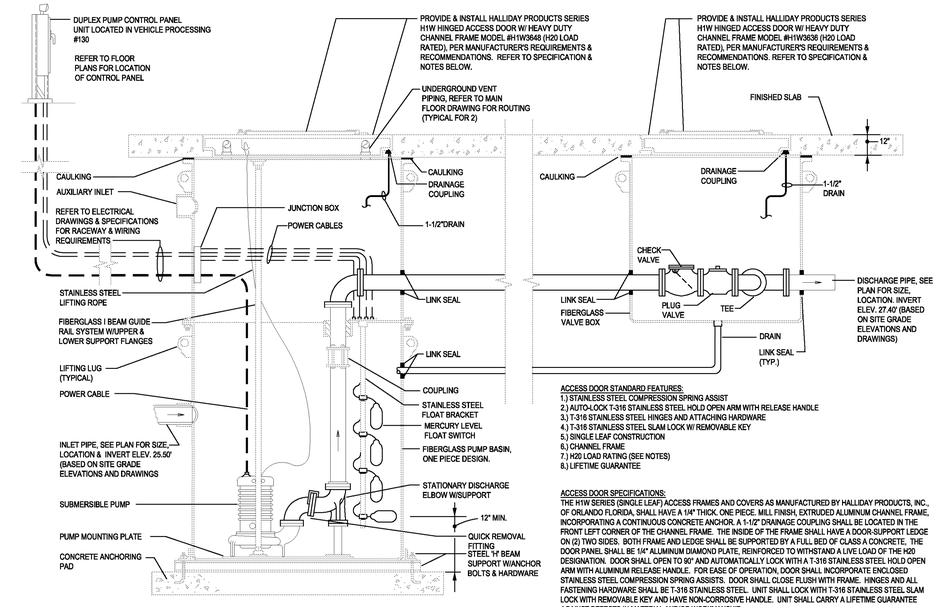
Classification	Conditions	Bonding	Bid Date	Bids To	Bid Type
General Contractor		Bid:10.00%,Perf:100.00%,Pay:100.00%	10/4/2016	Owner	Open Bidding

History

User	Viewed	First Viewed Date	Currently Tracked?	Date Tracked
Adam Sweet	True	9/1/2016	False	



1 P-6.1 **WATER HEATER PIPING SCHEMATIC**
NOT TO SCALE



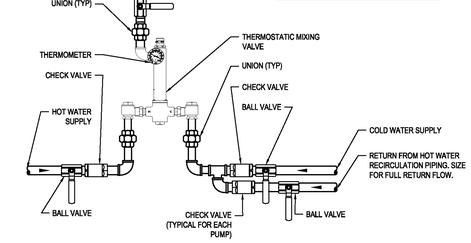
ACCESS DOOR STANDARD FEATURES:
1.) STAINLESS STEEL COMPRESSION SPRING ASSIST
2.) AUTO-LOCK T-316 STAINLESS STEEL HOLD OPEN ARM WITH RELEASE HANDLE
3.) T-316 STAINLESS STEEL HINGES AND ATTACHING HARDWARE
4.) T-316 STAINLESS STEEL SLAM LOCK W/ REMOVABLE KEY
5.) SINGLE LEAF CONSTRUCTION
6.) CHANNEL FRAME
7.) H20 LOAD RATING (SEE NOTES)
8.) LIFETIME GUARANTEE

ACCESS DOOR SPECIFICATIONS:
THE H1W SERIES (SINGLE LEAF) ACCESS FRAMES AND COVERS AS MANUFACTURED BY HALLIDAY PRODUCTS, INC., OF ORLANDO FLORIDA, SHALL HAVE A 1/4" THICK, ONE PIECE, MILL FINISH, EXTRUDED ALUMINUM CHANNEL FRAME, INCORPORATING A CONTINUOUS CONCRETE ANCHOR. A 1-1/2" DRAINAGE COUPLING SHALL BE LOCATED IN THE FRONT LEFT CORNER OF THE CHANNEL FRAME. THE INSIDE OF THE FRAME SHALL HAVE A DOOR-SUPPORT LEDGE ON (2) TWO SIDES. BOTH FRAME AND LEDGE SHALL BE SUPPORTED BY A FULL BED OF CLASS A CONCRETE. THE DOOR PANEL SHALL BE 1/4" ALUMINUM DIAMOND PLATE, REINFORCED TO WITHSTAND A LIVE LOAD OF THE H20 DESIGNATION. DOOR SHALL OPEN TO 90° AND AUTOMATICALLY LOCK WITH A T-316 STAINLESS STEEL HOLD OPEN ARM WITH ALUMINUM RELEASE HANDLE. FOR EASE OF OPERATION, DOOR SHALL INCORPORATE ENCLOSED STAINLESS STEEL COMPRESSION SPRING ASSISTS. DOOR SHALL CLOSE FLUSH WITH FRAME. HINGES AND ALL FASTENING HARDWARE SHALL BE T-316 STAINLESS STEEL. UNIT SHALL LOCK WITH T-316 STAINLESS STEEL SLAM LOCK WITH REMOVABLE KEY AND HAVE NON-CORROSIVE HANDLE. UNIT SHALL CARRY A LIFETIME GUARANTEE AGAINST DEFECTS IN MATERIAL AND/OR WORKMANSHIP.

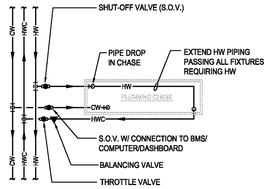
ACCESS DOOR NOTES:
1.) SUITABLE FOR USE IN OFF STREET LOCATION WHERE NOT SUBJECTED TO HIGH DENSITY TRAFFIC.
2.) PROVIDE A FULL BED OF CLASS A CONCRETE UNDER FRAME AND SUPPORT ANGLES.

NOTE: VERIFY ALL COMPONENTS, SIZING & CONNECTIONS WITH MANUFACTURER PRIOR TO INSTALLATION.

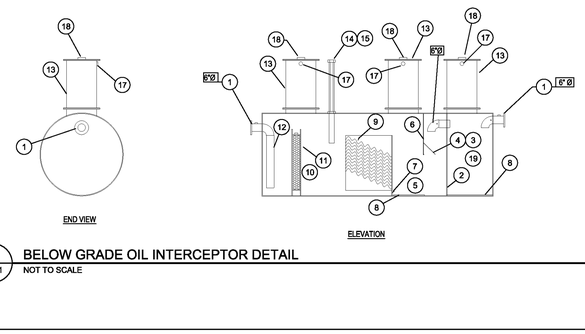
4 P-6.1 **UNDERGROUND PACKAGED DUPLEX SEWAGE LIFT STATION DETAIL**
SCALE: N.T.S.



2 P-6.1 **DETAIL OF THEROSTATIC MIXING VALVE**
NOT TO SCALE

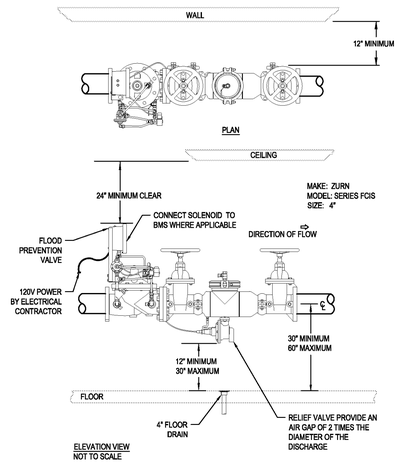


7 P6.1 **CW/HW/HWC PIPING SCHEMATIC @ PLUMBING CHASE (TYP.)**
N.T.S.

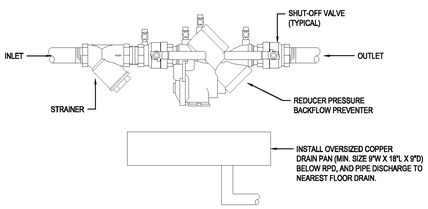


1. 150# R.F.S.O. FLANGE WITH 2" NPT FOR VENT
2. 7GA. BULKHEAD
3. VELOCITY HEAD DIFFUSION BAFFLE
4. WEAR PLATE
5. SEDIMENT CHAMBER
6. UNDERFLOW BAFFLE
7. SLUDGE BAFFLE
8. STRIKER PLATES
9. PARALLEL CORRUGATED PLATE COALESCER
10. OIL/WATER SEPARATOR CHAMBER
11. 6" THICK COALESCER MATERIAL INSTALLED WITH PULL ROD SHIPPED LOOSE
12. OUTLET DOWNCOMER
13. 24" MANWAY WITH BOLT-ON EXTENSION SHIPPED LOOSE
14. 4"Ø FITTING FOR OIL PUMP-OUT WITH INTERNAL PIPE INSTALLED AND RISER PIPE SHIPPED LOOSE
15. 2"Ø FITTING FOR LEVEL SENSOR WITH RISER PIPE SHIPPED LOOSE
16. LIFTING LUG
17. 2"Ø FITTING FOR VENT, TYPICAL BOTH MANWAYS
18. 4"Ø FITTING FOR GAUGE WITH PLUG, TYPICAL BOTH MANWAYS
19. SLUDGE CHAMBER

3 P-6.1 **BELOW GRADE OIL INTERCEPTOR DETAIL**
NOT TO SCALE



5 P-6.1 **FLOOD CONTROL BACKFLOW PREVENTER DETAIL (SIZES: 1-1/4"-10")**
NOT TO SCALE



6 P-6.1 **DETAIL OF REDUCED PRESSURE BACKFLOW PREVENTER**
NOT TO SCALE

KOHLER RONAN, LLC
93 Lake Avenue, Danbury, CT 06810
203.778.1017 F 203.778.1018
171 Madison Avenue
New York, NY 10016
212.695.2422 F 212.695.2423
www.kohlerronan.com
E-mail: kcox@kohlerronan.com

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JACUNSKI HUMES ARCHITECTS, LLC
15 MASSIRIO DRIVE
SUITE 101
BERLIN, CT 06037
TEL 860-828-9221
FAX 860-828-9223

DETAILS - PLUMBING

PROJ. NO.	DRAWING NO.
KR-16020	P-6.1
SCALE: N.T.S.	
DATE: AUG. 15, 2016	

SECTION 23 13 13 - FACILITY UNDERGROUND GASOLINE STORAGE TANKS

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. Composite, steel, gasoline USTs.
2. FRP fuel-oil USTs.
3. Liquid-level gage systems.
4. Leak-detection systems.

1.3 DEFINITIONS

A. UST: Underground storage tank.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, and dimensions of individual components and profiles.
2. Include, where applicable, rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
3. Leak-detection and monitoring system.

B. Shop Drawings: For underground fuel-oil storage tanks.

1. Include plans, elevations, sections, and ballast pads and anchors, and lifting or supporting points.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Shop Drawing Scale: 1/4 inch per foot.

1.5 INFORMATIONAL SUBMITTALS

A. Site Survey: Plans, drawn to scale, on which underground fuel-oil storage tanks are shown and coordinated with other services and utilities.

B. Field quality-control reports.

C. Sample Warranty: For special warranty.

1.6 QUALITY ASSURANCE

A. Underground Gasoline Storage Tanks: Comply with requirements of the EPA and of state and local authorities having jurisdiction, including recording fuel-oil storage tanks.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Lift and support fuel-oil storage tanks only at designated lifting or supporting points, as shown on Shop Drawings. Do not move or lift tanks unless empty.

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of fuel-oil storage tanks that fail in materials or workmanship within specified warranty period.

1. Storage Tanks:

a. Failures include, but are not limited to, the following when used for storage of fuel oil at temperatures not exceeding 150 deg F:

1) Structural failures including cracking, breakup, and collapse.
2) Corrosion failure including external and internal corrosion of steel tanks.

b. Warranty Period: 30 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 Underground Double-wall Type I Construction, U.L.58, Polyurethane -Coated Steel Storage Tank.

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Brown Tank.
2. Hamilton Tanks.

3. Kennedy Tank and Manufacturing Company, Inc.
4. Steel Tank & Fabricating Co., Inc.

B. The following items are the critical elements that should be included in the Mechanical Specifications for Underground Storage Tanks. If you have a separate section for the installation of storage tanks, utilization of paragraphs three through nine could be incorporated in the installation section.

C. Furnish an underground steel storage tank with the Highland Tank and Manufacturing's HighGuard corrosion control system. Tank shall be in conformance with U.L.58 Type I Construction. Tank size is noted on the Drawings, or as indicated in the Specifications.

D. Furnish a 10,000 gallon underground steel storage tank, 8'0" inside diameter by 26'8" inside length and externally protected with 75 mils thick of Highland Tank's HighGuard corrosion control system. The tank is built in accordance with U.L.58 Type I Construction criteria. The tank will have:

1. _____dia. Manhole with nuts and bolts and gasket for lid.
2. Internal ladder with 2"X 1/4" flat bar sides and 3/4" diameter rungs 12" on center.
3. hold down straps for double-wall tanks with neoprene liner and turnbuckles (2 per strap).
4. There shall be: (_6_) 4" dia., and (_1_) 2" dia. threaded NPT fittings as located on drawing
5. Striker plates required under each opening.
6. Polyurethane Coating System (75 mils DFT head & shell) per HighGuard.

E. The corrosion control system shall be in strict accordance with Highland's HighGuard specification. The tank shall have a limited warranty against failure due to exterior corrosion and internal corrosion when used with petroleum products or alcohol. Tank shall bear U.L.58 Type I Construction label. This tank does not require sacrificial anodes and therefore does not require cathodic monitoring. However, optional sacrificial anodes can be supplied to provide additional external corrosion protection.

F. 3. The tank excavation shall be free from material that may cause damage to the tank coating. Care shall be taken during installation that foreign matter is not introduced into excavation or backfill. The bottom of the excavation shall be covered with clean sand or gravel to depth shown on drawings suitably graded and leveled.

G. Special Note: If tank is to be placed on a concrete pad for anchoring purposes, the tank must not be placed directly on the pad. A layer of fine or pea gravel, sand or #8 crushed stone (#8 coarse aggregate ASTM D-448) at least 6" deep must be spread evenly over the dimensions of the pad to separate the tank from the pad.

H. If installation area is in a tidal area, the tank "bedding" material should be fine gravel or pea gravel rather than sand.

I. 4. An air test of the primary tank and interstitial space should be done above ground prior to installation. Pressure should not exceed 5 psi while a bubble solution is applied to welded seams. Refer to instructions on side of tank or per PEI RP100-2000.

J. Before placing the tank in the excavation, all dirt clods and similar foreign matter shall be cleaned from the tank, and areas of coating damage shall be repaired with a compatible coating.

K. Equipment to lift the tank shall be of adequate size to lift and lower the tank without dragging and dropping to ensure no damage to the tank or the coating. Tanks shall be carefully lifted and lowered by use of cables or chains of adequate length (not less than 45 including angle) attached to the lifting lugs provided. A spreader bar should be used where necessary. Under no circumstances use chains or slings around the tank shell.

L. Special Note: Hold Down Straps--Special care should be exercised when installing hold down straps to ensure that the straps are physically separated from the tank by separating pads made of an inert, insulation dielectric material. The separating pad should be at least 2" wider than the hold down straps width and must be carefully placed anywhere on the tank where hold down straps would come into direct contact with the tank shell.

M. Backfill consisting of sand, #8 crushed stone (#8 crushed aggregate ASTM D-448) or fine gravel, shall be placed along bottom side of tank by shoveling and tamping to ensure the tank is fully and evenly supported around bottom quadrant. The backfill shall be deposited carefully around tank and to a depth over tank to avoid damage to coating.

N. The plugs at unused tank openings shall be removed, a pipe compound shall be added and the plugs shall be reinstalled in the unused openings. Care should be taken not to cross-thread or damage the tank fittings when replacing plugs or installing required tank piping.

O. Tank shall be manufactured by Highland Tank & Manufacturing Company, Stoystown, PA; Manheim, PA; Watervliet, NY; or Greensboro, NC.

2.2 LIQUID-LEVEL GAGE SYSTEM

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Franklin Fueling Systems.
2. Highland Tank & Manufacturing Company, Inc.
3. INCON, Inc.
4. King Engineering Corp.
5. Pneumercator Inc.
6. Preferred Utilities Manufacturing Corporation.
7. Tuthill Corporation.

B. Description: Calibrated, liquid-level gage system complying with UL 180 with floats or other sensors and remote annunciator panel.

C. Annunciator Panel: With visual and audible, high-tank-level and low-tank-level alarms, fuel indicator with registration in gallons, and overfill alarm. Include gage volume range that covers fuel-oil storage capacity.

D. Controls: Electrical, operating on 120-V ac.

2.3 LEAK-DETECTION AND MONITORING SYSTEM

A. Cable and Sensor System: Comply with UL 1238.

1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

a. Highland Tank & Manufacturing Company, Inc.
b. Pneumercator Inc.
c. Veeder-Root Company (The).

2. Calibrated, leak-detection and monitoring system with probes and other sensors and remote alarm panel for fuel-oil storage tanks and fuel-oil piping.
3. Include fittings and devices required for testing.
4. Controls: Electrical, operating on 120-V ac.
5. Calibrated, liquid-level gage complying with UL 180 with floats or other sensors and remote annunciator panel.
6. Remote Annunciator Panel: With visual and audible, high-tank-level and low-tank-level alarms, fuel indicator with registration in gallons, and overfill alarm. Include gage volume range that covers fuel-oil storage capacity.
7. Controls: Electrical, operating on 120-V ac.

2.4 LABELING AND IDENTIFYING

A. Detectable Warning Tape: Acid- and alkali-resistant, PE film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored yellow.

2.5 SOURCE QUALITY CONTROL

A. Pressure test and inspect fuel-oil storage tanks, after fabrication and before shipment, according to ASME and the following:

1. Horizontal, Steel USTs with the STI-P3 Corrosion-Protection System: UL 58 and STI P3.

B. Affix standards organization's code stamp.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for underground fuel-oil storage tanks to verify actual locations.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 EARTHWORK

A. Comply with requirements in Section 31 20 00 "Earth Moving" for excavating, trenching, and backfilling.

B. Excavate to sufficient depth for a minimum of 36 inches of earth cover from top of tank to finished grade. Allow for cast-in-place, concrete-ballast base plus 6 inches of sand or pea gravel between ballast base and tank. Extend excavation at least 12 inches around perimeter of tank.

C. Backfill excavation with clean sand or pea gravel in 12-inch lifts and tamp backfill lift to consolidate.

D. Install filter mat between top of backfill material and earth fill.

3.3 UST INSTALLATION

A. Set tie-down eyelets for hold-down straps in concrete-ballast base and tie to reinforcing steel.

B. Place 6 inches of clean sand or pea gravel on top of concrete-ballast base.

C. Set tank on fill materials and install hold-down straps.

D. Connect piping.

E. Install tank leak-detection and monitoring devices.

F. Install containment sumps.

G. Install steel USTs with the STI-P3 corrosion-protection system according to STI R821 and STI R891. Protect anodes during tank placement and backfilling operations.

H. Install composite, steel USTs according to STI R913 and STI R891.

I. Install jacketed, steel USTs according to STI R923 and STI R891.

J. Fill storage tanks with gasoline.

3.4 LIQUID-LEVEL GAGE SYSTEM INSTALLATION

A. Install liquid-level gage system. Install panel inside building where indicated.

3.5 LEAK-DETECTION AND MONITORING SYSTEM INSTALLATION

A. Install leak-detection and monitoring system. Install alarm panel inside building where indicated.

1. Double-Wall, Gasoline Storage Tanks: Install probes or use factory-installed integral probes in interstitial space.
2. Install liquid-level gage.

3.6 LABELING AND IDENTIFYING

A. Nameplates, pipe identification, and signs are specified in Section 23 05 53 "Identification for HVAC Piping and Equipment."

B. Install detectable warning tape directly above UST, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

1. Terminate tracer wire in an accessible area, and identify as "tracer wire" for future use with plastic-laminate sign.
2. Install over edges of each UST.

3.7 FIELD QUALITY CONTROL

A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Tanks: Minimum hydrostatic or compressed-air test pressures for fuel-oil storage tanks that have not been factory tested and do not bear the ASME code stamp or a listing mark acceptable to authorities having jurisdiction:

a. Double-Wall Tanks:

1) Inner Tanks: Minimum 3 psig and maximum 5 psig.
2) Interstitial Space: Minimum 3 psig and maximum 5 psig, or 5.3-in. Hg vacuum.

b. Where vertical height of fill and vent pipes is such that the static head imposed on the bottom of the tank is greater than 10 psig, hydrostatically test the tank and fill and vent pipes to a pressure equal to the static head thus imposed.
c. Maintain the test pressure for one hour.

B. USTs will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 23 13 13

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. Oil interceptors.

1.3 RELATED REQUIREMENTS

A. Section 03 15 19 - Cast-In Concrete Anchors (Anchor Bolts for Hold-Down Straps)

B. Section 03 30 00 - Cast-in-Place Concrete (Concrete for Anchor Pad)

C. Section 22 14 13 - Facility Storm Drainage Piping

1.4 REFERENCE STANDARDS

A. AASHTO - American Association of State Highway and Transportation Officials

B. ANSI - American National Standards Institute

C. API - American Petroleum Institute

1. API Publication 421, Monographs on Refinery Environmental Control - Management of Water Discharges.

D. ASTM - American Society for Testing and Materials

1. ASTM Standard Specification for Carbon Structural Steel - ASTM International.

E. AWS - American Welding Society

1. Structural Welding Code – Steel.

F. NEC - National Electric Code

G. NEMA - National Electric Manufacturers Association

H. NFPA - National Fire Protection Association

1. NFPA 30, Flammable and Combustible Liquids Code;
2. NFPA 70, NEC National Electric Code.

I. OSHA - U. S. Department of Labor, Occupational Safety and Health Administration

1. OSHA 29 CFR 1910.106, Occupational Safety and Health Standards, particularly Flammable and Combustible Liquids.

J. PEI - Petroleum Equipment Institute.

1. RP100, Recommended Practices for Installation of Underground Liquid Storage Systems.

K. SSPC - Steel Structures Painting Council/NACE - National Association of Corrosion Engineers.

1. SSPC-SP 6/NACE No. 3, Commercial Blast Cleaning.
2. SSPC-SP 10/NACE No. 2, Near-White Blast Cleaning.

L. STI - Steel Tank Institute

M. UL - Underwriters Laboratories, Inc.

1. UL 58 - Steel Underground Tanks for Flammable and Combustible Liquids;
2. UL 1746 - Corrosion Protection of Underground Tanks;

N. U.S. Code of Federal Regulations (CFR) Title 33 and Title 40

1. Oil Pollution Act (Title 33 U.S.C. 2701 ET SEQ.; 104 STAT. 484);
2. Clean Water Act (Title 40 Effluent Guidelines and Standards).

O. U.S. EPA - United States Environmental Protection Agency

1.5 SUBMITTALS

A. Comply with Division 01 - Submittal Procedures.

B. Shop Drawings: Submit shop drawings of the coalescing oil/water separator(s) by the manufacturer showing principal dimensions and location of all fittings.

C. Product Data: Submit manufacturer's product data, including installation, operation, and maintenance instructions.

D. Quality Control: Quality control, inspection procedures, and reports shall be considered part of the submittal package.

E. Manufacturer's Certification: Submit manufacturer's certification that the coalescing oil/water separator(s) comply with specified requirements and are suitable for intended application.

F. Warranty Documentation: Submit manufacturer's standard warranty.

1.6 QUALITY ASSURANCE

A. Manufacturer's Qualifications:

1. Manufacturer regularly engaged, for past 20 years, in manufacture of coalescing oil/water separator(s) of similar type to that specified. No subcontracting of oil/water separator(s) fabrication shall be permitted.

2. Manufacturer shall provide written documentation that the oil/water separator was "Made in USA." The product must be "all or virtually all" fabricated in the United States, including the 50 states, the District of Columbia, and the U.S. territories and possessions.

3. Verification and Inspection:

a. Manufacturer shall permit scheduled plant inspections for:

1) Verification of manufacturing location.
2) Inspection during manufacturer's welding operations.
3) Inspection during manufacturer's coating operation.
4) Review of QA/QC Documentation.

b. Manufacturer shall provide inspector with a minimum of fourteen (14) days advanced notice prior to when the in-process inspection point is scheduled to occur.

B. Installer's Qualifications:

1. Installer regularly engaged, for past 5 years, in installation of coalescing oil/water separator(s) of similar type to that specified.

2. Employ persons qualified for proper installation of coalescing oil/water separator(s).

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle coalescing oil/water separator(s) in accordance with manufacturer's instructions.

B. Protect coalescing oil/water separator(s) during delivery, storage, handling, and installation to prevent damage.

1.8 WARRANTY

A. Warranty Period:

1. The manufacturer shall:

a. warrant its products to be free from defects in material and workmanship for a period of one (1) year from the date of shipment. The warranty shall be limited to repair or replacement of the defective part(s).
b. supply a ten (10) year limited warranty against external corrosion on terms provided by manufacturer.

1.9 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Interceptors, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Piping connections. Include size, location, and elevation of each.
2. Interface with underground structures and utility services.

PART 2 - PRODUCTS

2.1 CORELLA® COALESCING OIL/WATER SEPARATOR(S)

A. Corella® Coalescing Oil/Water Separator(s) shall be designed for gravity separation of free oils (hydrocarbons and other petroleum products) along with some settleable solids from wastewater associated with parking garage and maintenance operations.

1. Separator shall be installed underground with top access near or above grade level.
2. The source of the influent to the separator shall be gravity flow from storm water runoff, hydrocarbon spills, and/or cleaning/maintenance operations.

B. The free oil and grease concentration in the effluent from the Corella® Coalescing Oil/Water Separator(s) shall not exceed 10 mg/l (10 ppm). To achieve this goal, it will be necessary to remove all free oil droplets equal to and greater than 20 microns.

C. Nominal Oil/Water Separator Capacity: 2000 gallons, as indicated on the drawings.

1. Oil/Water Separator capacity and associated oil holding capacity have been calculated to comply with Spill Prevention Control and Countermeasures (SPCC) plan and National Pollutant Discharge Elimination System (NPDES) permit requirements of the facility. The sizing of this oil/water separator is consistent with industry protocols for complying with the minimum federal spill and discharge regulations therefore a separator of smaller volume is not permissible.

D. Nominal Dimensions:

1. Nominal Diameter: 5-feet, 4-inches, as indicated on the drawings.
2. Nominal Length: 12-feet, 0-inches, as indicated on the drawings.

E. Maximum Flow Rate: 200 gallons/minute, as indicated on the drawings.

F. Conformance:

1. API Publication 421, Monographs on Refinery Environmental Control - Management of Water Discharges.

a. Oil/Water Separator shall be designed in accordance with Stokes Law and the American Petroleum Institute Publication 421, "Monographs on Refinery Environmental Control - Management of Water Discharges; Design and Operation of Oil/Water Separators."
b. Effective surface area calculations, signed and stamped by a Registered Professional Engineer shall be submitted to document specified effluent quality based on complete removal of the specified oil globule at design flow.
c. An oil/water separator with lower effective surface area than required is not permissible.

2. Oil/Water Separator capacities, dimensions, construction and thickness shall be in strict accordance with Underwriters Laboratories, Inc. Subject UL 58 Standard for Safety, Steel Underground Tanks for Flammable and Combustible Liquids, Single-Wall Construction.

3. Pressure testing of oil/water separator.

a. The oil/water separator(s), their welds, seams and connecting fittings must be factory-tested for tightness using standard engineering practices.

b. Oil/Water Separator(s) must be guaranteed by the manufacturer to be tight.

4. Oil/Water Separator Corrosion Control System shall be in strict accordance with Underwriters Laboratories, Inc. Subject UL 1746 Standard for External Corrosion Protection Systems for Steel Underground Storage Tanks and HighGuard External Corrosion Protection Specifications.

5. Oil/Water Separator shall comply with National Fire Protection Association NFPA 30 Flammable and Combustible Liquids Code.

6. Oil/Water Separator volume shall allow for a nominal hydraulic retention time of ten (10) minutes.

   a. Oil/Water Separator volume has been calculated to ensure laminar flow conditions which result in hydraulic uniformity and high effluent quality.
   b. Volume reduction will adversely affect oil/water separator performance by increasing horizontal velocity and turbulence, therefore a separator of smaller volume is not permissible.

7. The oil/water separator shall have the structural strength to withstand static and dynamic hydraulic loading while empty and during operating conditions.

   a. The oil/water separator's dimensions and thickness shall be in strict compliance with Roark's Formulas for Stress and Strain as presented in UL 58.
   b. Calculations, signed and stamped by a Registered Professional Engineer shall be submitted to document structural strength under specified overbearing or external pressure.
   c. An oil/water separator with a reduced shell thickness is not permissible.

8. To prevent extensive shutdown and maintenance, the oil/water separator's coalescer design must allow solids to fall unhindered by turbulence, and oil droplets to rise, without risk of re-emulsifying due to collisions with interfering solids.

   a. The use of plastic perforated tubes, spherical balls, or irregular shaped media will increase the facility's maintenance costs and shall not be permitted.

G. Construction:

1. Oil/Water Separator shall be cylindrical, horizontal, atmospheric-type steel vessel intended for the separation and storage of flammable and combustible liquids.

   a. Separator shall be fabricated of 7-gauge thick mild carbon steel with shell seams of continuous lap weld construction. (Steel thickness determined by burial depth.)

2. The oil/water separator shall be a pre-packaged, pre-engineered, ready to install unit consisting of:

   a. An influent connection 6-inch, flanged.

      1) An internal influent nozzle at the inlet end of the separator.
      2) Nozzle discharge to be located at the furthest diagonal point from the effluent discharge opening.

   b. A Velocity Head Diffusion Baffle at the inlet to:

      1) reduce horizontal velocity and flow turbulence.
      2) distribute the flow equally over the separators cross sectional area.
      3) direct the flow in a serpentine path in order to enhance hydraulic characteristics and fully utilize all separator volume.
      4) completely isolate all inlet turbulence from the Oil/Water Separation Chamber.

3. A Sediment Chamber to disperse flow and collect oily solids and sediments.
4. A Sludge Baffle to retain settleable solids and sediment and prevent them from entering the Oil/Water Separation Chamber.
5. An Oil/Water Separation Chamber containing a removable Corella® inclined parallel flat/corrugated plate coalescer.

   a. The coalescer shall have individual removable plates, sloped towards the Sediment Chamber.
   b. Each coalescing plate shall be flat on the top and corrugated on the bottom. The flat top plate shall resist clogging and clotting with solids to minimize the facility's maintenance costs.
   c. The corrugations of each of the plate bottoms shall be shaped and positioned to enhance collisions between the

rising oil droplets and coalescence between them thereby improving separator efficiency.

d. The Corella® coalescer shall:

1) affect separation of both oil and solids from all strata of the wastewater stream.
2) shorten the vertical distance that an oil globule or solid particle has to raise or sink, respectively, for effective removal. The minimum plate gap to be one inch.
3) enhance coalescence and agglomeration by causing the smaller globules and particles (those possessing smaller rising/settling rates) to coalesce and collect on the plates thereby forming larger globules and particles that separate rapidly in water.
4) direct the flow paths of the separated oil to the surface of the separator and separated solids to the bottom of the separator.
5) allow solids to fall unhindered by turbulence, and oil droplets to rise, without risk of re-emulsifying due to collisions with interfering solids.

6. The Oil/Water Separation Chamber shall also contain a sectionalized removable "Petro-Screen" polypropylene impingement coalescer designed to intercept oil globules of 20 microns in diameter and larger.

a. Heavy, one-piece impingement coalescers are not permissible for safety reasons.

7. An internal effluent downcomer at the outlet end of the separator, to allow for discharge from the bottom of the Oil/Water Separation Chamber only.
8. An effluent connection 6-inch, flanged.
9. Fittings for vent, interface/oil level sensor, waste oil pump-out, and gauge.
10. Two (2) 24-inch diameter manways, UL approved, complete with extension, cover, gasket, and bolts. (Manway extension length determined by burial depth.)

a. One manway shall be placed between the inlet and the parallel flat/corrugated plate coalescer to facilitate access into Sediment Chamber for solids removal.
b. One manway shall be placed between the parallel flat/corrugated plate coalescer and outlet to facilitate access into the Oil/Water Separation Chamber for oil removal.

11. Lifting lugs at balancing points for handling and installation.
12. Identification plates: Plates to be affixed in prominent location and be durable and legible throughout equipment life.
13. Threaded NPT Fittings: Threaded fittings with thread protectors shall be supplied as follows:

    a. One (1), 2-inch Diameter: Interface/Oil Level Sensor
    b. One (1), 2-inch Diameter: Normal Vent (per manway, in manway extension)
    c. One (1), 4-inch Diameter: Oil/Sludge Level Gauging (per manway, in manway cover)
    d. One (1), 4-inch Diameter: Oil Pump-Out

H. Corrosion Protection System:

1. Exterior Protective Coating:

    a. Surface Preparation: Steel Grit Blast - SSPC-SP 6/NACE No.3 Commercial Blast Cleaning.
    b. External surfaces coated with 75 mils DFT HighGuard Self-Reinforcing Polyurethane.
    c. Polyurethane coating shall have a high cross-link density, which is, in essence, self-reinforcing or self-fibrating. Artificial fillers or reinforcement (chopped fiberglass or roving) shall not be permitted.
    d. Coating shall be subjected to a 15,000 volt spark test after application to ensure coating integrity and effective corrosion protection.

2. Internal Protective Lining:

    a. Surface Preparation: Steel Grit Blast - SSPC-SP 10/NACE No. 2, Near-White Blast Cleaning.
    b. Internal surfaces coated with 15 mils DFT solvent-free, two component polyurethane lining.

I. Corella® Coalescing Oil/Water Separator(s) Options/Accessories:

1. UL Listed Interface/Oil Level Sensor and Controls.

    a. Oil/Water Separator shall be supplied with an audible and visual alarm system that indicates high level and high-high level of accumulated oil in the oil/water separator.
    b. Level sensor to be intrinsically-safe, separator-mounted magnetic float probes, suitable for use in Class I, Division II, Group D locations.
    c. Level sensor floats to be made of Buna-N.

d. The control panel shall be NEMA 4X (FRP).
e. A silence control shall be provided for the audible alarms.
f. Power to the control panel is to be 110 volt, 1 phase.
g. Control panel shall be connected to Building Management System.

2. Hold-Down Straps. When oil/water separator(s) anchoring is required.

a. Polyester corrosion resistant hold-down straps with turnbuckles and a cable restraint system will be provided.

b. Steel hold-down straps with neoprene liners shall be provided where polyester straps are not applicable.

3. Prefabricated Concrete Deadman Anchors.

a. Pre-engineered and pre-fabricated concrete deadman anchors may be an acceptable means of anchoring the oil/water separator(s) provided buoyancy calculations are submitted and signed by an engineer of the separator manufacturer.
b. The concrete deadman anchors must be supplied by the separator manufacturer and have been a standard product for at least five years.
c. All pre-fabricated concrete deadman anchors shall be sized and installed in accordance with the separator manufacturer's guidelines.

4. Cylindrical and/or rectangular steel Grade Level Manways designed to AASHTO H20 requirements.

a. Grade Access Manways will consist of:

1) Structural steel frames with integral concrete anchors and 12" deep steel concrete retention skirts. Manway access covers shall be flush style, skid free composite construction with recessed picking handles for easy removal. All manways will be H-20 truckload rated. Manways shall be furnished by oil/water separator manufacturer.
2) Oil pump-out and oil level sensor riser pipes shall be recessed below one single grade access manway or multiple manways as shown on contract drawings.
3) All grade access manways for a complete oil/water separator installation shall be supplied by the manufacturer for single source supply.

5. Spill Container:

   a. Oil/Water Separator shall include one (1) spill container to contain product spills from the Oil Pump-Out Pipe.

      1) Spill container shall be painted or plated steel, 14 gauge minimum thickness.
      2) Hinged lockable metal rainproof lid shall be provided.
      3) Spill container shall have a capacity of not less than five gallons.
      4) Spill containment shall comply with NFPA codes.

6. Manufacturer On-Site Training Assistance

   a. On-site training will be included. This project requires Factory Personnel/Factory Representative to perform on-site training upon completion of field wiring and filling of oil/water separator(s).

PART 3 - EXECUTION

3.1 EARTHWORK

A. Excavating, trenching, and backfilling are specified in Section 31 20 00 "Earth Moving."

3.2 GENERAL

A. Installation and testing shall be in strict accordance with the Highland Tank's Oil/Water Separator Users' Manual available at www.highlandtank.com.

B. No modifications shall be made to the oil/water separator(s) without the prior written approval of the manufacturer and the Engineer. This includes any welding on separator shells, adding penetrations, modifying the separator structure, or repairing damage that might affect the integrity of the oil/water separator(s).

C. Contractor shall install oil/water separator(s), piping, and equipment (inlet/outlet shut off valves, sensors, pumps, vents, gauges, etc.) in accordance with the manufacturers' installation instructions, industry standard recommended practices and federal, state and local regulations.

D. Oil/Water Separator(s) shall be handled, lifted, stored, and secured in accordance with the manufacturer's instructions.

E. The hazards associated with the cleaning, entry, inspection, testing, maintenance or other aspects of oil/water separator(s) are significant.

Safety considerations and controls should be established prior to undertaking physical activities associated with oil/water separator(s).

1. Never enter an OWS or enclosed space, under any condition, without proper training and OSHA approved equipment. (Consult OSHA regulation 29 CFR 1910.146 "Permit Required Confined Spaces.")
2. Entry and cleaning of oil/water separator(s) must be per federal (OSHA), state, and local regulations as well as company requirements.

F. Familiarity with the Site.

1. Contractor shall familiarize self with the location of all public utility facilities and structures that may be found in the vicinity of the construction.
2. The Contractor shall conduct his operation to avoid damage to the utilities or structures.
3. The Contractor is responsible for meeting all the requirements established by the agencies for utility work, as well as work affecting utilities and other government agencies.

3.3 EXAMINATION

A. Examine excavation to receive underground Corella® Coalescing Oil/Water Separator(s).

B. Notify site supervisor or engineer of conditions that would adversely affect installation.

C. Do not begin installation until unacceptable conditions are corrected.

3.4 INSTALLATION

A. Set interceptors level and plumb.

B. Install manhole risers from top of underground interceptors to manholes and gratings at finished grade.

C. Set tops of manhole frames and covers flush with finished surface in pavements.

D. Set interceptors level and plumb.

E. Install oil interceptors, including trapping, venting, and flow-control fitting, according to authorities having jurisdiction and with clear space for servicing.

3.5 CONNECTIONS

A. Piping installation requirements are specified in Section 22 13 16 "Sanitary Waste and Vent Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

B. Make piping connections between interceptors and piping systems.

3.6 IDENTIFICATION

A. Identification materials and installation are specified in Section 31 20 00 "Earth Moving."

1. Arrange for installation of green warning tapes directly over piping and at outside edges of underground interceptors.
2. Use warning tapes or detectable warning tape over ferrous piping.
3. Use detectable warning tape over nonferrous piping and over edges of underground structures.

END OF SECTION 22 13 23