

Request for Proposals Number: **24-21**

Addendum 1

Date: February 22, 2024

This addendum serves to notify qualified vendors that **ATTENDED THE MANDATORY PREBID MEETING:**

1. Any changes to drawings or specifications are attached.
2. First round of questions has been answered and are attached
3. Opportunity to tour the site again is being made available for qualified bidders and their subcontractors

An optional Pre-Proposal survey / tour will be held on site at the 269 Melrose Street on Monday February 26, 2024 from 10AM –11:00AM. Meet at 269 Melrose Street, the main entrance lobby. All questions will need to be in writing to Sheryl Gomes. Question period will be extended to Thursday February 28, 2024

This garage is an active garage so for safety reasons, bidders are **STRICTLY PROHIBITED** from entering the garage that are not part of this survey. Pre-Proposal Meeting Attendees must wear Reflective Safety Vests.

Once again, please note that any prime contractor that did not attend the initial mandatory prebid meeting is not qualified to submit a proposal.



Request for Information (RFI) Form

RFI#1

Date: February 13, 2024

To: Purchasing Department
Rhode Island Public Transit Authority

Project: Sheryl Gomes
705 Elmwood Ave.
Providence, RI 02090

Email: sgomes@ripta.com

From: Dave Romaine

QUESTION(s):

1. Is there MWBE/DBE requirements that have to be met?
The DBE Goal for this project is 0% (zero percent), however, RIPTA highly encourages and supports the use of DBE subcontractors on this project, where appropriate.
2. Will there be a public bid opening that we can attend?
The bid opening is witnessed by other RIPTA staff, and the bids logged. This project is being procured by the request for proposals process versus a strict invitation for bids (costs are the only factor). With an RFP there is the potential to negotiate, therefore we do not open bids publicly or release information prior to the award of the contract.
3. Is this project tax exempt? RIPTA as an agency is tax exempt
4. Do we need to carry the cost for permits within our bid? YES
5. How much area can we occupy at one time for our work? See Attached
6. What are the hours of operation for the facility? 7:30am-4:00pm

7. Where can we store materials and equipment? **See Attached**
8. Is water available on site? **YES**
9. Project award is scheduled for April and the start date is in June, is this correct? **YES (if all permits and materials are in place then possibly start earlier)**
10. Can load requirements or specifications be provided for the steel plates? **page 12 of the specifications**
11. What is the duration of the warranty for the trench drains? **Limited Warranty/Exclusive Remedy (see below)**
12. Will a quantity of concrete repairs be provided for bidding purposes? **Unit Pricing will be requested in addendum #1**
13. Are there any liquidated damages on this project? **NO**

Question # 11

Limited Warranty; Exclusive Remedy. EXCEPT AS SET FORTH IN ANY APPLICABLE LIMITED WARRANTY THAT MAY BE GIVEN BY SELLER AND IN EFFECT WITH RESPECT TO THE PRODUCTS, SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCTS. SELLER DISCLAIMS ANY WARRANTY WITH RESPECT TO THE MERCHANTABILITY OF THE PRODUCTS OR THE FITNESS OF THE PRODUCTS FOR ANY PARTICULAR PURPOSE OR USE OF BUYER AS WELL AS ANY EXPRESS OR IMPLIED WARRANTIES OR CONDITIONS ARISING BY ANY COURSE OF DEALING, COURSE OF PERFORMANCE OR USAGE OF TRADE. SELLER FURTHER DISCLAIMS ANY WARRANTY WITH RESPECT TO THE CONFORMANCE OF THE PRODUCTS WITH ANY REQUIREMENTS OR SPECIFICATIONS PROVIDED BY BUYER, UNLESS THE CONFORMANCE WITH SUCH REQUIREMENTS OR SPECIFICATIONS HAS BEEN SPECIFICALLY AGREED TO BY SELLER IN WRITING. Any warranty made by Seller will be expressly subject to proper use of the Products in accordance with any directions for use or other applicable instructions or documentation. No warranty shall apply in situations of error, omission, or negligence in connection with installation, operation, or use of the Products. Further, and unless otherwise specified in any applicable limited warranty given by Seller with respect to the Products, any course of action for breach of any warranty given by Seller shall be brought within one (1) year from the date the alleged breach was discovered or should have been discovered, whichever occurs first. BUYER'S SOLE REMEDY IN THE EVENT OF A BREACH OF THE FOREGOING WARRANTIES IS THE REPAIR OR REPLACEMENT OF THE AFFECTED PRODUCT BY SELLER. Seller's repair or replacement of any Products in the manner contemplated by this provision or any limited warranty provided by Seller will not be deemed an admission of any fault on the part of Seller or its principals or affiliates, or an admission that the Products are otherwise defective or non-conforming.

Bidding and Contract Requirements

Technical Specifications

General Requirements

Summary of Work

Site Construction and Material Specifications

Cast In Place Concrete

Surface Drainage Systems

Health and Safety Plan

Temporary Steel Plates

~~Resinous Flooring~~

Sherman Williams Armorseal HS Polyurethane Floor Enamel (Product Information and Application Bulletin)

Sherman Williams Macropoxy 646 Fast Cure Epoxy Mastic (Product Information, Environmental Data Sheet, and Safety Data Sheet)

Simple Green Concrete and Driveway Cleaner
Spilpro Weld-O-Bond

Trench Drain Layouts

Drawings

Sheet 1A Site Location Map
Sheet 1A Site Location Map
Sheet 2 Demolition – Removal of Trench Drain
Sheet 2A Demolition – Removal of Trench Drain
Sheet 3 Proposed Trench Drain Layout
Sheet 3A Proposed Trench Drain Layout
Sheet 4 Power Drain Cross Section Detail
Sheet 4A Power Drain Cross Section Detail
Sheet 5 ACO Trench Drain Profile
Sheet 6 Trench Grate Detail
Sheet 7 CB Sewer Saddle Detail
Sheet 7A Sanitary Connections
Sheet 8 Trench Drain 1 Catch Basin/MH
Sheet 8A Trench Drain 1 Catch Basin/MH
Sheet 9 NTS Steel Crossing and Power Drain Detail
Sheet 9 NTS Steel Crossing and Power Drain Detail
Sheet 10 Replacement Concrete Patch
Sheet 10A Replacement Concrete Patch
Sheet 11A Concrete Chip Repair

SCOPE OF Project:

Includes, but not limited to:

Remove nine trench drains (Trench Drains 1 through 9)

Install nine new trench drains (Trench Drains 1 through 9)

Drop inlet and outlet openings in basin to be cut in the field.

On-Site Work Hours: Limit work to normal business working hours of 7:30 a.m. to 4:00 p.m., Monday through Friday, unless otherwise indicated. If work is required outside of the listed hours, the Contractor should coordinate with the Owner 24 hours in advance.

- Install manhole cover over catch basin
- Install new trench drains and trench drain catch basin and set in concrete.
- Plumb trench drain catch basins into 8" ductile iron drain using a catch basin saddle
- Place, remove, and replace road plates based on bus traffic and work schedule.
- Plates over final concrete pour to remain in-place for a minimum of 28-days.
- ~~During the curing period, an epoxy coating is to be applied over the surface of the new concrete~~
- Final site restoration including power washing and degreasing the whole garage floor when drains have been completed and repaint all traffic lane lines with the Sherwin Williams product MACROPOXY 646 and topcoat with Sherwin Williams Armoseal HS Polyurethane Floor Enamel per manufacturer's instructions

Remove Reference

END OF SECTION

LUMP SUM BASE BID

Lump Sum Bid Price In Words	Lump Sum Bid – In Figures
_____	\$ _____

UNIT PRICE BASE BID ITEMS

Section

Unit Bid Item No.	Item Description	Unit of Measure	Unit Price – Words and (Figures)	Quantity	Amount
1.	Partial Depth Concrete Spall Repair Per Dwg 11A	SF	_____ Dollars and _____ Cents (\$ _____)	25 _____ –	\$ _____

TOTAL BASE BID PRICE

FOR PURPOSES OF BID COMPARISON, TOTAL BASE BID PRICE FOR: LUMP SUM AND UNIT PRICE BID ITEM 1.

\$ _____ (Amount in Figures)

\$ _____ (Amount in Words)

ALTERNATE BID ITEMS

Alt. Bid Item No.	Item Description	Unit of Measure	Unit Price – Words and (Figures)
N/A			_____ Dollars and _____ Cents (\$ _____)

TOTAL BASE BID PRICE

FOR PURPOSES OF BID COMPARISON, TOTAL BASE BID PRICE FOR: LUMP SUM ITEM 1, UNIT PRICE
 BID ITEMS 1 AND 2, AND ALLOWANCE ITEM 1.

\$ _____ (Amount in Figures)

\$ _____ (Amount in Words)

ADDENDUM 1

SUMMARY OF WORK

PART 1 - GENERAL

1.01 LOCATION OF WORK:

- A. The work for this Contract is located in the City of Providence, Rhode Island. The site is located at 269 Melrose Street, near the intersection with Longfellow Street (See Sheet 1 for Site location). The building is an active bus terminal for Rhode Island Public Transit Authority (RIPTA). In addition to serving as a bus garage, the building also functions as both a bus wash and fueling station for RIPTA buses. The Scope of Work detailed in this specification is to be performed inside the building.”

1.02 SCOPE OF WORK:

- A. Furnish all labor, materials, equipment, and incidentals necessary to perform the work as shown on the drawings and specified herein.
- B. The planned construction consists of the following:

- Remove nine trench drains (Trench Drains 1 through 9) as shown on Sheet 2 *A*.
- Saw cut concrete where the trench drain catch basins will be connected into the 8” ductile iron drain either directly below or offset (see Sheet 3 *A* for locations).
- Abandoned existing laterals to 8” ductile iron drainpipe for Trench Drain (TD) – 4, TD-5, TD-7, and TD-9 in-place but remove the cleanouts. *Seal influent opening of lateral using expandable foam and a cap.*
- Saw cut concrete at beginning of the 8” ductile iron drainpipe next to TD-1 and install a 4 ft. by 6 ft. concrete catch basin with a total depth of 6 feet below grade (see Sheet 8A). Drop inlet and outlet openings in basin to be cut in the field.
- Install manhole cover over catch basin (see Sheet 8A).
- Install new trench drains and trench drain catch basin and set in concrete.
- ~~Plumb trench drain catch basins into 8” ductile iron drain using a catch basin saddle (Sheet 7).~~
- *Plumb trench drain catch basins into 8” ductile pipe drain using a sanitary wye (Sheet 7A).*
- Plumb trench drain for TD-1 and the beginning of the existing 8” ductile iron drain pipe into catch basin.
- ~~Tap trench laterals into 8” ductile iron drainpipe for TD 4, TD 5, TD 7, and TD 9.~~
- ~~Saw cut concrete to expose trench laterals and cleanouts for TD 2, TD 3, TD 6, and TD 8. Replace trench laterals and cleanouts using existing lateral layouts without cutting concrete curbing and island.~~
- *Saw cut concrete to expose trench laterals from trench drains TD-2, TD-3, TD-6, and*

ADDENDUM 1

TD-8 up to the edge of the concrete island. Replace trench laterals with 4" PVC pipes and install a new cleanout. Tap the new trench lateral into existing lateral pipe beneath the concrete island. There is to be NO cutting of concrete island.

- Place, remove, and replace road plates based on bus traffic and work schedule.
- Plates over final concrete pour to remain in-place for a minimum of 28-days.
- During the curing period, an epoxy coating is to be applied over the surface of the new concrete in accordance with manufactures guidelines (See Specification for Resinous Flooring).
- As part of final site restoration Contractor to power wash and degrease entire floor with a Tennant floor scrubber or similar floor power washing system. Use of a Wand type power washer is NOT ALLOWED.
- Floor cleaning product to be used is Simple Green Concrete and Driveway Cleaner (Pressure Washer Concentrate) or similar product with Owner and Engineer approval.
- Final site restoration including power washing and degreasing the whole garage floor when drains have been completed and
- Repaint traffic lines along with other fading traffic lines with the Sherwin Williams product MACROPOXY 646 and topcoat with Sherwin Williams Armoseal HS Polyurethane Floor Enamel per manufacturer's instructions.
- Newly installed trenches shall be cleaned as work progresses in accordance with OSHA guidelines, good housekeeping practices and Owner guidance. DO NOT WASH debris, liquids, or other materials into the existing system.
- Contractor to conduct a final flow test of the newly installed trench drains to ensure there are no blockages or dips in the new trenches that can affect flow. Flow test should be conducted using a 300 gallon water tote that will release approximately 150 gallons into each trench so flow can be observed. The Owner and/or Engineer must be present during the flow tests, and the Contractor will document observed test flow conditions.

1.03 PROJECT/SITE CONDITIONS:

- A. The Contractor shall accommodate the flow of pedestrians and vehicular traffic adjacent to the work areas.
- B. This project is an active bus terminal for RIPTA. The building functions as a bus wash, fueling station and garage for RIPTA buses. As such buses, drivers and other RIPTA employees may be entering and exiting the building during the project.
- C. It is the contractor's responsibility to create a safe and secure work zone in accordance with RIPTA directives and all applicable federal, state, and local regulations.
- D. On-site storage of equipment, materials, supplies and tools for the trade are to be stored in an area on-site designated by RIPTA. Storage space may be located in RIPTA's building located at 267 Melrose Street which is directly across the travel lane from the project.
- E. The height and width of the overhead garage doors may be restrictive for certain pieces of equipment or vehicles. It is the contractor's responsibility to verify the dimensions of

ADDENDUM 1

CAST-IN-PLACE CONCRETE

1.1 SUMMARY

4. Concrete to be fiber mesh reinforced, minimum of 5,000 psi sufficient for Class F loading in accordance with ACO manufacturer specifications. ACO is the selected manufacturer of the trench drains (See Surface Drainage Systems). Concrete testing to be performed by an independent, certified 3rd party materials testing firm. **Pinning of concrete sections or concrete drains is NOT ALLOWED**
2. Pinning of concrete sections or concrete drains is NOT ALLOWED without Owner authorization. Multiple pours for one line of trench NOT ALLOWED without Owner authorization.

1.2 CONCRETE CHIP REPAIR

1. Saw cut edges where chips are present shall be repaired by re-saw cutting area to achieve a clean straight edge or patch chipped areas after concrete pour.
2. Repair of chip area using a quick drying cement. Clean the area first of debris and dust then apply the cement to the area that needs repair. Shape the cement to match floor grade and allow cement to dry.

CAST-IN-PLACE CONCRETE

B. To accommodate work and bus traffic, only three contiguous travel lanes will be available to the contractor at one time between the hours of 7:30A – 4:00P to allow buses access to the building. The buses must be able to drive over the trenches 24/7. Steel road plates must be in place over the trenches prior to 4:00P when the majority of the buses return. Trench #9 to be completed first, the contractor will have access to the entirety of trench #9 for this project. Accommodations to construction project restrictions may be made upon request by the Contractor to the Owner. Requests must be made in a timely fashion during the construction process. Owner may require a written request in addition to a verbal request.

C. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.12 WARRANTY

- A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.
- B. Manufacturer's Warranty:
 - 1. Warranty Period: 12 months commencing on Date of Substantial Completion or 24 months from date of purchase, whichever is sooner.

PART 2 PRODUCTS

2.1 ACO PowerDrain Model S100K 4" width

2.2 MANUFACTURERS

- A. Acceptable Manufacturer:
 - 1. ACO, Inc.; 9470 Pinecone Dr., Mentor, OH 44060. ASD. Toll Free Tel: (800) 543-4764. Tel: (440) 285-7000. Fax: (440) 285-7005. Email: info@acousa.com. Web: <http://www.acousa.com>.
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.3 SYSTEM DESIGN:

- A. Load Class: Provide trench drain system designed, engineered and installed to support the minimum loads as defined by EN1433. Load Class shall be: Class F.
- B. Grate Design: Safety.
 - 1. Grates that comply with requirements of the Americans with Disabilities Act (ADA) of 1990 are available.
 - 2. Other safety-focused grates include a 'heelsafe' pattern in compliance with American Society of Mechanical Engineers (ASME) A112.6.3, Floor and Trench Drains. Section 7.12, "Heel Resistant Strainers and Grates,
 - 3. Grates are designed to prevent small stiletto-style heels from getting stuck, causing injury or falls. In addition, bicycle-safe grates avoid slot openings that can trap modern bicycle wheels.

2.4 PowerDrain – Heavy duty trench drains system

- A. Product: PowerDrain Trench System as manufactured by ACO, Inc.
 - 1. Units: Polymer concrete with ductile iron edge protection rail, grate lugs and locks to prevent dislodgement.
 - a. One meter (39.4 inches) long units shall provide 130 feet (40m) continuous slope (0.5%, 1/17 inch fall per linear foot). Five neutral slope channels extend run lengths. Four half-meter neutral slope channels and accessories for a complete

ADDENDUM 1

TEMPORARY STEEL PLATES

Part 1 - Summary

- A. Contractor to supply solid steel road plates during the length of the project to accommodate vehicular and pedestrian traffic during construction and protect concrete pours during curing.
- B. Contractor to place, remove, and replace road plates based on bus traffic and work schedule.
- C. Plates over final concrete pour to remain in-place for a minimum of 28-days.

Part 2 – Materials and Placement:

- A. The steel for plates shall be either ASTM A 36 Grade 36 (Yield Strength of 36,000 psi) or ASTM A 572 Grade 50 (Yield Strength of 50,000 psi).
- B. All plating used shall be without deformations (warping, cracking, etc.). Plate removal will be required if plate is permanently deformed. Steel road plate deformation may occur during loading, but if a steel plate is deformed without loading to at least 0.5 inch per 10 feet in length the plate shall be removed and replaced.
- C. Plates to be secured during concrete curing using 1/4" shims to prevent minor defections due to loading to contact the concrete.
- D. Material for temporary transition/wedge pavement leading to the plate shall be required during concrete curing to prevent water from contacting the concrete.
- E. The plate and the anchor system shall be designed for the forces resulting from a truck braking on the plate.
- F. The plates must extend beyond the edge of the trench to safely and adequately support the traffic loads on it. Steel plates shall be placed perpendicular over a concrete floor opening in accordance with the table and detail provided on ~~Sheet 6~~ **Sheet 9A**.
- G. Steel road plates shall not be overlapped or stacked on top of another plate.
- H. The gap between the edge of the plate(s) and the adjacent pavement (not being reconstructed) shall be filled with a temporary bituminous overlay wedge ~~or alternate temporary wedge provided by Contractor for approval from the Owner and Engineer.~~ **Contractor to place a paper material beneath the bituminous wedge to prevent staining of concrete.**
- I. The plates shall be secured by an approved method to prevent any movement. If the plates are to be left in place for an extended period of time, the method of securing the plates shall be inspected every 3 days, at the Contractor's expense to ensure that they have not become loose.

RESINOUS FLOORING
HYBRI-FLEX EB Flintshot with Armor Top

~~PART 1 - GENERAL~~

~~1.1 RELATED DOCUMENTS~~

- ~~A. Drawings and general provisions of the Contract, including Summary of Work Specification Sections, apply to this Section.~~

~~1.2 SUMMARY~~

- ~~A. This section includes the following:~~
- ~~1. Resinous flooring~~
- ~~B. Related sections include the following:~~
- ~~1. Cast-in-Place Concrete~~

~~1.3 SYSTEM DESCRIPTION~~

- ~~A. The work shall consist of preparation of the substrate, the furnishing and application of a cementitious-urethane based self-leveling seamless flooring system with quartz aggregate broadcast and Epoxy broadcast and topcoats.~~
- ~~B. The system shall have the color and texture as specified by the Owner with a nominal thickness of 1/4 inch. It shall be applied to the prepared area(s) as defined in the plans strictly in accordance with the Manufacturer's recommendations.~~

~~1.4 SUBMITTALS~~

- ~~A. Product Data: Latest edition of Manufacturer's literature including performance data and installation procedures.~~
- ~~B. Manufacturer's Safety Data Sheet (SDS) for each product being used.~~
- ~~C. Samples: A 3 x 3 inch square sample of the proposed system. Color, texture, and thickness shall be representative of overall appearance of finished system subject to normal tolerances.~~

~~1.5 QUALITY ASSURANCE~~

- ~~A. The Manufacturer shall have a minimum of 10 years experience in the production, sales, and technical support of epoxy and urethane industrial flooring and related materials.~~
- ~~B. The Applicator shall have experience in installation of the flooring system as confirmed by the manufacturer in all phases of surface preparation and application of the product specified.~~
- ~~C. No requests for substitutions shall be considered that would change the generic type of the specified System.~~
- ~~D. System shall be in compliance with requirements of United States Department of Agriculture (USDA), Food, Drug Administration (FDA), and local Health Department.~~
- ~~E. The system shall be in compliance with the Indoor Air Quality requirements for local, state, and federal regulations as verified by a qualified independent testing laboratory.~~
- ~~F. System shall be in compliance with LEED v4 EPD and HPD as verified by a qualified third party validation.~~
- ~~G. A pre-installation conference shall be held between Applicator, General Contractor and the Owner to review and clarification of this specification, application procedure, quality control, inspection and acceptance criteria and production.~~

~~1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING~~

- ~~A. Packing and Shipping~~
- ~~1. All components of the system shall be delivered to the site in the Manufacturer's packaging, clearly identified with the product type and batch number.~~

~~B. Storage and Protection~~

- ~~1. The Applicator shall be provided with a dry storage area for all components. The area shall be between 60 F and 85 F, dry, out of direct sunlight and in accordance with the Manufacturer's recommendations and relevant health and safety regulations.~~
- ~~2. Copies of Safety Data Sheets (SDS) for all components shall be kept on site for review by the Engineer or other personnel.~~

~~C. Waste Disposal~~

- ~~1. The Applicator shall be provided with adequate disposal facilities for non-hazardous waste generated during installation of the system.~~

~~1.7 PROJECT CONDITIONS~~

~~A. Site Requirements~~

- ~~1. Application may proceed while air, material and substrate temperatures are between 60 F and 85 F providing the substrate temperature is above the dew point. Outside of this range, the Manufacturer shall be consulted.~~
- ~~2. The relative humidity in the specific location of the application shall be less than 85 % and the surface temperature shall be at least 5 F above the dew point.~~
- ~~3. The Applicator shall ensure that adequate ventilation is available for the work area. This shall include the use of manufacturer's approved fans, smooth bore tubing and closure of the work area.~~
- ~~4. The Applicator shall be supplied with adequate lighting equal to the final lighting level during the preparation and installation of the system.~~

~~B. Conditions of new concrete to be coated with cementitious urethane material.~~

- ~~1. Concrete shall be moisture-cured for a minimum of 3 days and have fully cured a minimum of 5 days in accordance with ACI-308 prior to the application of the coating system pending moisture tests.~~
- ~~2. Concrete shall have a flat rubbed finish, float or light steel trowel finish (a hard steel trowel finish is neither necessary nor desirable).~~
- ~~3. Sealers and curing agents should not be used.~~
- ~~4. Concrete shall have a minimum design strength of 3,500 psi. and a maximum water/cement ratio of 0.45~~

~~C. Safety Requirements~~

- ~~1. All open flames and spark-producing equipment shall be removed from the work area prior to commencement of application.~~
- ~~2. "No Smoking" signs shall be posted at the entrances to the work area.~~
- ~~3. The Owner shall be responsible for the removal of foodstuffs from the work area.~~
- ~~4. Non-related personnel in the work area shall be kept to a minimum.~~

~~1.8 WARRANTY~~

- ~~A. Dur-A-Flex, Inc. warrants that material shipped to buyers at the time of shipment substantially free from material defects and will perform substantially to Dur-A-Flex, Inc. published literature if used in accordance with the latest prescribed procedures and prior to the expiration date.~~
 - ~~B. Dur-A-Flex, Inc. liability with respect to this warranty is strictly limited to the value of the material purchase.~~
-

~~PART 2 - PRODUCTS~~

~~2.1 FLOORING~~

- ~~A. Dur-A-Flex, Inc, Hybri-Flex EB (self leveling broadcast quartz), epoxy/aliphatic urethane topcoat seamless flooring system.~~

~~1. System Materials:~~

- ~~a. Topping: Dur-A-Flex, Inc, Poly-Crete SL resin, hardener and SL aggregate.
b. The broadcast aggregate shall be Dur-A-Flex, Inc. Flintshot quartz aggregate.
c. Broadcast: Dur-A-Flex, Inc. Shop Floor, epoxy based two component resin.
d. Seal coats: Dur-A-Flex, Inc. Shop Floor, epoxy based, two component resin.
e. Top coat: Dur-A-Flex, Inc. Armor Top aliphatic urethane multi component resin.~~

~~2. Patch Materials~~

- ~~a. Shallow Fill and Patching: Use Dur-A-Flex, Inc. Poly-Crete MD (up to ¼ inch).
b. Deep Fill and Sloping Material (over ¼ inch): Use Dur-A-Flex, Inc. Poly-Crete WR.~~

~~2.2 MANUFACTURER~~

- ~~A. Dur-A-Flex, Inc., 95 Goodwin Street, East Hartford, CT 06108, Phone: (860) 528-9838, Fax: (860) 528-2802
B. Manufacturer of Approved System shall be single source and made in the USA.~~

~~2.3 PRODUCT REQUIREMENTS~~

~~A. Topping~~

~~Poly-Crete SL~~

- | | |
|--|--------------------------------------|
| 1. Percent Reactive | 100 % |
| 2. VOC | 0 g/L |
| 3. Bond Strength to Concrete ASTM D 4541 | 400 psi, substrates fails |
| 4. Compressive Strength, ASTM C 579 | 9,000 psi |
| 5. Tensile Strength, ASTM D 638 | 2,175 psi |
| 6. Flexural Strength, ASTM D 790 | 5,076 psi |
| 7. Impact Resistance @ 125 mils, MIL D-3134,
No visible damage or deterioration | 160 inch lbs |

~~B. Broadcast Coat, Grout Coat~~

~~Shop-Floortm Resin~~

- | | |
|--|--|
| 1. Percent Reactive, | 100 % |
| 2. VOC | <8 g/L |
| 3. Water Absorption, ASTM D 570 | 0.04 % |
| 4. Tensile Strength, ASTM D 638 | 4,000 psi |
| 5. Coefficient of thermal expansion
ASTM D 696, | 2 x 10⁻⁵ in/in/F |
| 6. Flammability ASTM D-635 | Self-Extinguishing |
| 7. Flame Spread/ NFPA 101 ASTM E-84 | Class A |

~~C. Topcoat~~

~~Armor Top~~

- | | |
|---|---|
| 1. VOC | 0 g/L |
| 2. 60 Degree Gloss ASTM D523 | 75+/-5 |
| 3. Mixed Viscosity, (Brookfield 25°C) | 500 cps |
| 4. Tensile strength, ASTM D-638 | 7,000 psi |
| 5. Abrasion Resistance, ASTM D4060
CS 17 wheel (1,000 g load) 1,000 cycles | Gloss Satin
10 12 mg loss |
| 6. Pot life @ 70° F 50% RH | 2 hours |
-

-
- | | | |
|-----------------------------|--|--|
| 7. Dry properties, | 70°F, 50% R.H.
60°F, 30% RH
80°F, 70%RH | 8 hours tack free, 12 hours Dry
12 hours tack free, 18 hours Dry
4 hours tack free, 6 hours Dry |
| 8. Full Chemical resistance | | 7 days |

~~PART 3 EXECUTION~~

~~3.1 EXAMINATION~~

- ~~A. Examine substrates, areas and conditions, with Applicator present, for compliance with requirements for maximum moisture content, installation tolerances and other conditions affecting flooring performance.~~
- ~~1. Verify that substrates and conditions are satisfactory for flooring installation and comply with requirements specified.~~

~~3.2 PREPARATION~~

~~A. General~~

- ~~1. New and adjoining existing concrete surfaces shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, and bituminous products.~~
- ~~2. Moisture Testing: Perform tests recommended by manufacturer and as follows:~~
- ~~a. Perform anhydrous calcium chloride test ASTM F 1869-98. Application will proceed only when the vapor/moisture emission rates from the slab is less than and not higher than 20 lbs/1,000 sf/24 hrs.~~
- ~~b. Perform relative humidity test using in situ probes, ASTM F 2170. Proceed with installation only after substrates have a maximum 99% relative humidity level measurement.~~
- ~~c. If the vapor drive exceeds 99% relative humidity or 20 lbs/1,000 sf/24 hrs then the Owner and/or Engineer shall be notified and advised of additional cost for the possible installation of a vapor mitigation system that has been approved by the manufacturer or other means to lower the value to the acceptable limit.~~
- ~~3. Mechanical surface preparation~~
- ~~a. Shot blast all surfaces to receive flooring system with a mobile steel shot, dust recycling machine (Blastac or equal). All surface and embedded accumulations of paint, toppings hardened concrete layers, laitance, power trowel finishes and other similar surface characteristics shall be completely removed leaving a bare concrete surface having a minimum profile of CSP 3-4 as described by the International Concrete Repair Institute.~~
- ~~b. Floor areas inaccessible to the mobile blast machines shall be mechanically abraded to the same degree of cleanliness, soundness and profile using diamond grinders, needle guns, bush hammers, or other suitable equipment.~~
- ~~c. Where the perimeter of the substrate to be coated is not adjacent to a wall or curb, a minimum 1/4 inch key cut shall be made to properly seat the system, providing a smooth transition between areas. The detail cut shall also apply to drain perimeters and expansion joint edges.~~
- ~~d. Cracks and joints (non-moving) greater than 1/8 inch wide are to be chiseled or chipped out and repaired per manufacturer's recommendations.~~
- ~~4. At spalled or worn areas, mechanically remove loose or delaminated concrete to a sound concrete and patch per manufactures recommendations.~~

~~3.3 APPLICATION~~

~~A. General~~

- ~~1. The system shall be applied in five distinct steps as listed below:~~
- ~~a. Substrate preparation~~
- ~~b. Topping/overlay application with quartz aggregate broadcast.~~
- ~~c. Resin application with quartz aggregate broadcast.~~
- ~~d. Grout coat application~~
- ~~e. Topcoat application.~~
- ~~f. Joint sealant application~~
- ~~g. Line Striping~~
-

-
- ~~2. Immediately prior to the application of any component of the system, the surface shall be dry and any remaining dust or loose particles shall be removed using a vacuum or clean, dry, oil-free compressed air.~~
 - ~~3. The handling, mixing and addition of components shall be performed in a safe manner to achieve the desired results in accordance with the Manufacturer's recommendations.~~
 - ~~4. The system shall follow the contour of the substrate unless pitching or other leveling work has been specified by the Architect.~~
 - ~~5. A neat finish with well-defined boundaries and straight edges shall be provided by the Applicator.~~

~~B. Topping~~

- ~~1. The topping shall be applied as a self-leveling system as specified by the Architect. The topping shall be applied in one lift with a nominal thickness of 1/8 inch.~~
- ~~2. The topping shall be comprised of three components, a resin, hardener and filler as supplied by the Manufacturer.~~
- ~~3. The hardener shall be added to the resin and thoroughly dispersed by suitably approved mechanical means. SL Aggregate shall then be added to the catalyzed mixture and mixed in a manner to achieve a homogenous blend.~~
- ~~4. The topping shall be applied over horizontal surfaces using 1/2 inch "v" notched squeegee, trowels or other systems approved by the Manufacturer.~~
- ~~5. Immediately upon placing, the topping shall be degassed with a loop roller.~~
- ~~6. Quartz aggregate shall be broadcast to excess into the wet material at the rate of 0.8 lbs/sf.~~
- ~~7. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.~~

~~C. Broadcast~~

- ~~1. The broadcast coat resin shall be applied at the rate of 90 sf/gal.~~
- ~~2. The broadcast coat shall be comprised of liquid components, combined at a ratio of 2 parts resin to 1 part hardener by volume and shall be thoroughly blended by mechanical means such as a high-speed paddle mixer.~~
- ~~3. Quartz aggregate shall be broadcast into the wet resin at the rate of 0.5 lbs/sf.~~
- ~~4. Allow material to fully cure. Vacuum, sweep and/or blow to remove all loose aggregate.~~

~~D. Topcoat~~

- ~~1. The first pigmented topcoat shall be squeegee applied with a coverage rate of 90 sf/gal.~~
- ~~2. The topcoat shall be comprised of liquid components, combined at a ratio of 2 parts resin to 1 part hardener by volume and shall be thoroughly blended by mechanical means such as a high-speed paddle mixer.~~
- ~~3. The first topcoat will be back-rolled and cross-rolled to provide a uniform texture and finish~~
- ~~2. The second pigmented topcoat (Armor-Top) shall be roller applied with a coverage rate of 500 sf/gal with duragrip.~~
- ~~3. The finish floor will have a nominal thickness of 1/4 inch.~~

~~E. Flexible Joint Sealant~~

- ~~1. Apply a flexible urethane joint sealant in all construction and expansion joints according to manufacturers' guidelines of joint sealant.~~

~~F. Line Striping~~

- ~~1. Apply Dur-A-Gard with superstick additive for line striping as directed on the drawings.~~

~~3.4 FIELD QUALITY CONTROL~~

~~A. Tests, Inspection~~

- ~~1. The following tests shall be conducted by the Applicator:~~
 - ~~a. Temperature~~
 - ~~1. Air, substrate temperatures and, if applicable, dew point.~~
 - ~~b. Coverage Rates~~
 - ~~1. Rates for all layers shall be monitored by checking quantity of material used against the area covered.~~
-

3.5 ~~CLEANING AND PROTECTION~~

- ~~A. Cure flooring material in compliance with manufacturer's directions, taking care to prevent their contamination during stages of application and prior to completion of the curing process.~~
- ~~B. Remove masking. Perform detail cleaning at floor termination, to leave cleanable surface for subsequent work of other sections.~~



ArmorSeal ARMORSEAL HS POLYURETHANE Heavy Duty Floor Coatings

PART A
PART B

B65-220
B65V220

SERIES
HARDENER

Revised: March 24, 2022

PRODUCT INFORMATION

8.46

PRODUCT DESCRIPTION

ARMORSEAL HS POLYURETHANE FLOOR ENAMEL is a heavy duty, two component, exterior/interior, high solids, polyester-aliphatic urethane industrial floor coating. Provides a high gloss, excellent chemical resistance, color retention, and chalk resistance.

- Outstanding resistance a wide range of chemical, weather, and mechanical conditions
- Abrasion and impact resistant
- Superior exterior color and gloss retention
- Outstanding application properties

PRODUCT CHARACTERISTICS

Finish:	Gloss
Color:	Wide range of colors available
Volume Solids:	71% ± 2%, mixed, may vary by color
Weight Solids:	90% ± 2%, mixed, may vary by color
VOC (EPA Method 24):	<250 g/L; 2.1 lb/gal, mixed
Mix Ratio:	2:1 by volume

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	3.0 (75)	4.5 (112)
Dry mils (microns)	2.0 (50)	3.0 (75)
~Coverage sq ft/gal (m ² /L)	380 (9.3)	570 (14.0)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1136 (27.8)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 3.0 mils wet (75 microns):

	@ 50°F/10°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	16 hours	2 hours	30 minutes
To handle:	24 hours	10 hours	2 hours
foot traffic:	24 hours	12 hours	8 hours
heavy traffic:	5 days	72 hours	48 hours
To recoat:			
minimum:	24 hours	12 hours	2 hours
maximum:	3 days	48 hours	24 hours
To cure:	7 days	7 days	5 days

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Pot Life: 5 hours 4 hours 45 minutes

Sweat-in-Time: None required

Shelf Life: Part A: 36 months, unopened
Part B: 24 months, unopened
Store indoors at 40°F (4.5°C) to 100°F (38°C)

Flash Point: 102°F (39°C), TCC, mixed

Reducer*: VOC Restricted Areas (<250 g/L):
Reduction not recommended

Clean Up: Reducer R6K30 or R7K225

*Other areas (<340 g/L): Reducer R6K30 or R7K225 up to 5% by volume.
Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

RECOMMENDED USES

- For industrial, commercial, or marine floor use where a heavy duty polyurethane floor coating is required
- For use over prepared concrete and steel
- Resists splash, spillage, and fumes of dilute acids, alkalies, solvents, and fuels
- Exterior floors (helipads)
- Auto service centers, computer rooms
- Airport hangars (skydrol resistance)
- Suitable for use in USDA inspected facilities.

PERFORMANCE CHARACTERISTICS

Test Name	Test Method	Results
Abrasion Resistance	ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load	63 mg loss (average of 5 trials)
Adhesion, steel (epoxy primer)	ASTM D3359 Method B; ASTM D4541	5B, 100% Retention (ASTM D3359); 1200 psi (ASTM D4541)
Adhesion, concrete (epoxy primer)	ASTM D4541	350 psi, 100% concrete failure
Direct Impact Resistance	ASTM D2794	100 in. lb.
Dry Heat Resistance	ASTM D2485	200°F (93°C), 250°F (121°C) intermittent
Exterior Durability	2 years at 45° South	Excellent, 87% gloss retention
Flexibility	ASTM D522, 180° bend, 1/4" mandrel	Passes
Humidity Resistance	ASTM D4585, 100°F (38°C), 2000 hours	No blistering, cracking, softening or delamination
Pencil Hardness	ASTM D3363	H
Salt Fog Resistance, with primer	ASTM B117, 1000 hours	Rating 10 per ASTM D610 for rusting, less than 1/16" creepage at scribe. No blistering, cracking, softening, or delamination of the film.
Slip Resistance, Floors	ASTM C1028**, .60 Minimum Static Co-efficient of Friction	Passes wet and dry without SharkGrip Additive, and dry with SharkGrip Additive

**Test method withdrawn in 2014 without replacement



ArmorSeal ARMORSEAL HS POLYURETHANE Heavy Duty Floor Coatings

PART A
PART B

B65-220
B65V220

SERIES
HARDENER

Revised: March 24, 2022

PRODUCT INFORMATION

8.46

RECOMMENDED SYSTEMS

Dry Film Thickness / ct.
Mils (Microns)

Concrete/Wood:

1 ct.	ArmorSeal 1000HS (reduced 1 pt/gal with R7K54)		
2 cts.	ArmorSeal HS Polyurethane Floor Enamel	2.0-3.0	(50-75)

Steel:

1 ct.	Recoatable Epoxy Primer	4.0-5.0	(100-125)
2 cts.	ArmorSeal HS Polyurethane Floor Enamel	2.0-3.0	(50-75)

Painted Surfaces in Sound Condition:

1-2 cts.	ArmorSeal HS Polyurethane Floor Enamel	2.0-3.0	(50-75)
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The systems listed above are representative of the product's use, other systems may be appropriate.

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Refer to product Application Bulletin for detailed surface preparation information.

Minimum recommended surface preparation:

- * Iron & Steel: SSPC-SP6/NACE 3
- * Concrete: SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3

* Primer required

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Power Tool Cleaning	C St 3	C St 3	SP 3	-
Pitted & Rusted	D St 3	D St 3	SP 3	-

TINTING

Tint Part A with Maxitoner Colorant at 100% tint strength (white tint base and ultradeep tint base only). Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.

APPLICATION CONDITIONS

Temperature:	40°F (4.5°C) minimum, 100°F (38°C) maximum (air, surface, and material)
Relative humidity:	At least 5°F (2.8°C) above dew point 75% maximum

Refer to product Application Bulletin for detailed application information.

ORDERING INFORMATION

Packaging:	
Part A:	1 gal (3.78L) and 5 gal (18.9L)
Part B:	1 gal (3.78L) and 5 gal (18.9L)

Weight:	10.45 ± 0.2 lb/gal ; 1.25 Kg/L mixed, may vary with color
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SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

DISCLAIMER

The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Information and Application Bulletin.



ArmorSeal ARMORSEAL HS POLYURETHANE Heavy Duty Floor Coatings

PART A
PART B

B65-220
B65V220

SERIES
HARDENER

Revised: March 24, 2022

APPLICATION BULLETIN

8.46

SURFACE PREPARATIONS

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Iron & Steel

Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1. Minimum surface preparation is Commercial Blast Cleaning per SSPC-SP6/NACE 3. For better performance, use Near White Metal Blast Cleaning per SSPC-SP10/NACE 2. Blast clean all surfaces using a sharp, angular abrasive for optimum surface profile (1-2 mils / 25-50 microns). Prime any bare steel the same day as it is cleaned or before flash rusting occurs. Primer Required.

Concrete and Masonry

For surface preparation, refer to SSPC-SP13/NACE 6, or ICRI No. 310.2R, CSP 1-3. Surfaces should be thoroughly clean and dry. Concrete and mortar must be cured at least 28 days @ 75°F (24°C). Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement and hardeners. Fill bug holes, air pockets and other voids with Steel-Seam FT910. Primer required.

Follow the standard methods listed below when applicable:

ASTM D4258 Standard Practice for Cleaning Concrete.
ASTM D4259 Standard Practice for Abrading Concrete.
ASTM D4260 Standard Practice for Etching Concrete.
ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete.
SSPC-SP 13/Nace 6 Surface Preparation of Concrete.
ICRI No. 310.2R Concrete Surface Preparation.

Previously Painted Surfaces:

If in sound condition, clean the surface of all foreign material. Smooth, hard or glossy coatings and surfaces should be dulled by abrading the surface. Apply a test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, or if this products attacks the previous finish, removal of the previous coating may be necessary. If paint is peeling or badly weathered, clean surface to sound substrate and treat as a new surface as above.

Surface Preparation Standards

Condition of Surface	ISO 8501-1 BS7079:A1	Swedish Std. SIS055900	SSPC	NACE
White Metal	Sa 3	Sa 3	SP 5	1
Near White Metal	Sa 2.5	Sa 2.5	SP 10	2
Commercial Blast	Sa 2	Sa 2	SP 6	3
Brush-Off Blast	Sa 1	Sa 1	SP 7	4
Hand Tool Cleaning	C St 2	C St 2	SP 2	-
Pitted & Rusted	D St 2	D St 2	SP 2	-
Rusted	C St 3	C St 3	SP 3	-
Power Tool Cleaning	Pitted & Rusted	D St 3	SP 3	-

APPLICATION CONDITIONS

Temperature: 40°F (4.5°C) minimum, 100°F (38°C) maximum
(air, surface, and material)
At least 5°F (2.8°C) above dew point

Relative humidity: 75% maximum

APPLICATION EQUIPMENT

The following is a guide. Changes in pressures and tip sizes may be needed for proper spray characteristics. Always purge spray equipment before use with listed reducer. Any reduction must be compliant with existing VOC regulations and compatible with the existing environmental and application conditions.

Reducer* VOC Restricted Areas (<250 g/L):
Reduction not recommended

Clean Up Reducer R6K30 or R7K225

*Other areas (<340 g/L): Reducer R6K30 or R7K225 up to 5% by volume. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.

Airless Spray

Pressure.....2400 - 3000 psi
Hose.....3/8" ID
Tip013" - .017"
Filter 60 mesh
Reduction.....Not recommended

Conventional Spray

Gun Binks 95
Cap 63P
Tip 66
Atomization Pressure.....50 - 60 psi
Fluid Pressure.....20 - 30 psi
Reduction.....Not recommended

Brush

Brush.....Natural Bristle
Reduction.....Not recommended

Roller

Cover 1/4" woven with solvent resistant core
Reduction.....Not recommended

If specific application equipment is not listed above, equivalent equipment may be substituted.



ArmorSeal ARMORSEAL HS POLYURETHANE Heavy Duty Floor Coatings

PART A
PART B

B65-220
B65V220

SERIES
HARDENER

Revised: March 24, 2022

APPLICATION BULLETIN

8.46

APPLICATION PROCEDURES

Surface preparation must be completed as indicated.

Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine two parts by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated. Re-stir before using.

If reducer is used, add only after both components have been thoroughly mixed.

If an anti-slip finish is desired, the additive is mixed into the final coat just prior to application. (EXCEPTION: If anti-slip is desired with Clear finish, it should be hand broadcast). A 3/4" pile roller is recommended for the final coat when anti-slip aggregate is used.

Apply paint at the recommended film thickness and spreading rate as indicated below:

Recommended Spreading Rate per coat:

	Minimum	Maximum
Wet mils (microns)	3.0 (75)	4.5 (112)
Dry mils (microns)	2.0 (50)	3.0 (75)
~Coverage sq ft/gal (m ² /L)	380 (9.3)	570 (14.0)
Theoretical coverage sq ft/gal (m ² /L) @ 1 mil / 25 microns dft	1136 (27.8)	

NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.

Drying Schedule @ 3.0 mils wet (75 microns):

	@ 50°F/10°C	@ 77°F/25°C 50% RH	@ 100°F/38°C
To touch:	16 hours	2 hours	30 minutes
To handle:	24 hours	10 hours	2 hours
foot traffic:	24 hours	12 hours	8 hours
heavy traffic:	5 days	72 hours	48 hours
To recoat:			
minimum:	24 hours	12 hours	2 hours
maximum:	3 days	48 hours	24 hours
To cure:	7 days	7 days	5 days

If maximum recoat time is exceeded, abrade surface before recoating.

Drying time is temperature, humidity, and film thickness dependent.

Pot Life: 5 hours 4 hours 45 minutes

Sweat-in-Time: None required

Application of coating above maximum or below minimum recommended spreading rate may adversely affect coating performance.

CLEAN UP INSTRUCTIONS

Clean spills and spatters immediately with Reducer R6K30 or R7K225. Clean tools immediately after use with Reducer R6K30 or R7K225. Follow manufacturer's safety recommendations when using any solvent.

DISCLAIMER

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PERFORMANCE TIPS

Stripe coat all crevices, welds, and sharp angles to prevent early failure in these areas.

When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. If necessary, cross spray at a right angle.

Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions, and excessive film build.

Excessive reduction of material can affect film build, appearance, adhesion and potentially cause color float.

Do not apply the material beyond recommended pot life.

Do not mix previously catalyzed material with new.

In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with Reducer R6K30 or R7K225.

Mixed coating is sensitive to water. Use water traps in all air lines. Moisture contact can reduce pot life and affect gloss and color.

Additive of anti-slip aggregate produces only a light nonslip texture. Product should not be used in place of a nonskid finish when safety is a concern.

Material cannot be sprayed if anti-slip aggregate is used.

Shot blasted floors will require a high build primer.

When rolling this product, always maintain a wet edge to avoid roller marks. Roll as close to any cut-in areas as possible to eliminate visual imperfections. Roller application must be from a roller tray, not by pouring the material onto the surface.

Coated surfaces may discolor under tires due to tire plasticizer migration.

Refer to Product Information sheet for additional performance characteristics and properties.

SAFETY PRECAUTIONS

Refer to the SDS sheet before use.

Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.

WARRANTY

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Protective & Marine Coatings

PRODUCT DATA SHEET



MACROPOXY® 646

FAST CURE EPOXY MASTIC

Revised: July 24, 2023

PRODUCT DESCRIPTION

MACROPOXY 646 Fast Cure Epoxy Mastic is a high solids, high build, fast drying, polyamide epoxy designed to protect steel and concrete in industrial exposures. Ideal for maintenance painting and fabrication shop applications. The high solids content ensures adequate protection of sharp edges, corners, and welds. This product can be applied directly to marginally prepared steel surfaces.

INTENDED USES

- Recommended for marine applications, refineries, offshore platforms, fabrication shops, chemical plants, tank exteriors, power plants, water treatment plants, and mining and minerals industry
- Factory ground formulas are available for subsea/immersion service. For a full list of shades please consult Sherwin-Williams

PRODUCT DATA

Finish:	Semi-Gloss		Average Drying Times @ 7.0 mils (175 microns) wet:		
Colors:	Mill White, Black and a wide range of colors available through tinting		35°F (1.7°C)	77°F (25°C)	100°F (38°C)
Volume Solids:	72% ± 2%, mixed, Mill White		50% RH	50% RH	50% RH
VOC (mixed):	<250 g/L; 2.08 lb/gal		Touch:	4-5 hours	2 hours
Mix Ratio:	1:1 by volume		Handle:	48 hours	8 hours
Typical Thickness:			Recoat:		4.5 hours
			minimum:	48 hours	8 hours
			maximum:	1 year	1 year
			Cure to service:		
			atmospheric:	10 days	7 days
			immersion:	14 days	7 days
			Average Drying Times as intermediate @ 5.0 mils (125 microns) wet:		
			Touch:	3 hours	1 hour
			Handle:	48 hours	4 hours
			Recoat:		2 hours
			minimum:	16 hours	4 hours
			maximum:	1 year	1 year
			<i>If maximum recoat time is exceeded, abrade surface before recoating.</i>		
			<i>Drying time is temperature, humidity, and film thickness dependent.</i>		
			<i>Paint temperature must be 40°F (4.5°C) minimum.</i>		
			Pot Life:	10 hours	4 hours
			Sweat-in-time:	30 minutes	30 minutes
					15 minutes

Recommended Spreading Rate per coat:	Minimum	Maximum
Wet mils (microns)	7.0 (175)	13.5 (338)
Dry mils (microns)	5.0* (125)	10.0 (250)
~Coverage sq ft/gal (m²/L)	115 (2.9)	230 (5.8)
Theoretical coverage sq ft/gal (m²/L) @ 1 mil / 25 microns dft	1152 (28.2)	
<i>*May be applied at 3.0-10.0 mils (75-250 microns) dft as an intermediate in a multicoat system.</i>		
<i>NOTE: Brush or roll application may require multiple coats to achieve maximum film thickness and uniformity of appearance.</i>		
Shelf Life:	36 months, unopened Store indoors at 40°F (4.5°C) to 110°F (43°C).	
Flash Point:	91°F (33°C), TCC, mixed	
Reducer/Clean Up¹:	VOC Restricted Areas (<250 g/L): use Reducer #111 or Oxsol 100	
Weight:	12.9 ± 0.2 lb/gal ; 1.55 Kg/L, mixed, may vary by color	

SURFACE PREPARATION

Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust, and other foreign material to ensure adequate adhesion.

Minimum recommended surface preparation:

Iron & Steel:	Atmospheric: SSPC-SP2/3/ ISO8501-1:2007 St 2 or SSPC-SP WJ-3 / NACE WJ-3L Immersion: SSPC-SP10 / NACE 2/ ISO8501-1:2007 Sa 2.5, 2-3 mil (50-75 micron) profile or SSPC-SP WJ-2/NACE WJ-2L
Stainless Steel:	Atmospheric: SSPC-SP16, 1 mil (25 micron) profile
Aluminum & Galvanizing:	SSPC-SP1. If surface has not be weathered for more than 6 months, follow SSPC-SP1 then SSPC-SP16. For fire proofing projects, consult a Sherwin-Williams representative for surface preparation requirements.
Concrete & Masonry:	Atmospheric: SSPC-SP13/NACE 6, or ICRI No. 310.2R CSP 1-3 Immersion: SSPC-SP13/NACE 6-4.3.1
Ductile Iron Pipe:	Atmospheric: NAPF 500-03-03 Power Tool Cleaning Buried & Immersion: NAPF 500-03-04 Abrasive Blast Cleaning Cast Ductile Iron Fittings: NAPF 500-03-05 Abrasive Blast Cleaning



Protective & Marine Coatings

PRODUCT DATA SHEET



MACROPOXY® 646

FAST CURE EPOXY MASTIC

APPLICATION			APPLICATION CONDITIONS	
Airless Spray* Pump 30:1 Pressure 2800-3000 psi (193-206 bar) Hose 1/4" ID (6.3 mm) Tip 0.17"-0.23" (0.43-0.58 mm) Filter 60 mesh Reduction As needed up to 10% by volume			Temperature: Air: 35°F (1.7°C) minimum, 120°F (49°C) maximum Surface: 35°F (1.7°C) minimum, 250°F (120°C) maximum Material: 40°F (4.5°C) minimum At least 5°F (2.8°C) above dew point Relative humidity: 85% maximum	
Conventional Spray* Gun DeVilbiss MBC-510 Fluid Tip E Air Nozzle 704 Atomization Pressure 60-65 psi (4.1-4.5 bar) Fluid Pressure 10-20 psi (0.7-1.4 bar)			*Application to surfaces above 120°F (49°C) is not recommended in VOC Restricted Areas (≤250 g/L). When spraying a surface above 120°F (49°C) in other areas (>250 g/L), please consult with your Sherwin-Williams representative.	
Brush* Brush Nylon/Polyester or Natural Bristle			APPROVALS	
Roller* Cover 3/8" woven with solvent resistant core			<ul style="list-style-type: none">Suitable for use in USDA inspected facilitiesAcceptable for use in Canadian Food Processing facilities, categories: D1, D2, D3 (Confirm acceptance of specific part numbers/boxes with your SW Sales Representative)Conforms to AWWA D102 OCS #5Conforms to MPI # 108This product meets specific design requirements for non-safety related nuclear plant applications in Level II, III and Balance of Plant, and DOE nuclear facilitiesMeets Class A requirements for Slip Coefficient, 0.36 @ 6 mils / 150 microns dft (Mill White only)Approved intermediate for NEPCOAT System BApproved to Norsok M501 system 7B (limited colors)ISO 12944:2018 approved for C2 to CX	
Plural Component Spray Acceptable			ADDITIONAL NOTES	
*Reduction ¹ VOC Restricted Areas (<250 g/L): use Reducer #111 or Oxsol 100			Tint Part A with Maxitones at 150% strength. Five minutes minimum mixing on a mechanical shaker is required for complete mixing of color.	
¹ Other areas (<340 g/L): use Reducer #111, Oxsol 100, or Reducer #15 up to 10%. Choose a reducer that is compliant in your area. Confirm compliance with state and local air quality rules before use.			Tinting is not recommended for immersion service.	
If specific application equipment is not listed above, equivalent equipment may be substituted.			Quick-Kick Epoxy Accelerator is acceptable for use. See data page for details.	
RECOMMENDED SYSTEMS			Acceptable for concrete floors.	
Dry Film Thickness / ct. Mils (Microns)			Application to surfaces above 120°F (49°C) is not recommended in VOC Restricted Areas (≤250 g/L). When spraying a surface above 120°F (49°C) in other areas (>250 g/L), please consult with your Sherwin-Williams representative. Spray apply only. Product will produce an orange peel appearance when applied at elevated temperatures.	
Steel & Ductile Iron, Immersion & Atmospheric			Topcoating: It is recommended to apply a thinned-down, low wet film thickness mist coat over zinc rich primers to help avoid outgassing. Allow it to tack up and seal the surface. Then apply a full wet film thickness coat as directed.	
2 Cts. Macropoxy 646	5.0-10.0	(125-250)	Mix contents of each component thoroughly with low speed power agitation. Make certain no pigment remains on the bottom of the can. Then combine one part by volume of Part A with one part by volume of Part B. Thoroughly agitate the mixture with power agitation. Allow the material to sweat-in as indicated prior to application. Re-stir before using.	
Steel, Organic Zinc Primer, Atmospheric			HEALTH AND SAFETY	
1 Ct. Zinc Clad IV (85)	3.0-5.0	(75-125)	Refer to the SDS sheet before use.	
1 Ct. Macropoxy 646	5.0-10.0	(125-250)	Published technical data and instructions are subject to change without notice. Contact your Sherwin-Williams representative for additional technical data and instructions.	
Steel, Inorganic Zinc Primer, Atmospheric			DISCLAIMER	
1 Ct. Zinc Clad II (85)	2.0-4.0	(50-100)	The information and recommendations set forth in this Product Data Sheet are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your Sherwin-Williams representative to obtain the most recent Product Data Sheet.	
1 Ct. Macropoxy 646	5.0-10.0	(125-250)		
Steel, Organic Zinc/Epoxy/Urethane Topcoat				
1 Ct. Zinc Clad IV (85)	3.0-5.0	(75-125)		
1 Ct. Macropoxy 646	3.0-10.0	(75-250)		
1 Ct. Acrolon 7300	2.0-4.0	(50-100)		
Steel, Inorganic Zinc/Epoxy/Urethane Topcoat				
1 Ct. Zinc Clad II (85)	2.0-4.0	(50-100)		
1 Ct. Macropoxy 646	3.0-10.0	(75-250)		
1 Ct. Acrolon 7300	2.0-4.0	(50-100)		
Steel, Organic Zinc/Epoxy/Polysiloxane Topcoat, Atmospheric				
1 Ct. Zinc Clad IV (85)	3.0-5.0	(75-125)		
1 Ct. Macropoxy 646	3.0-10.0	(75-250)		
1-2 Cts. Sher-Loxane 800	4.0-6.0	(100-150)		
Steel: Norsok M501 System 7B/Subsea				
2 Cts. Macropoxy 646	7.0	(175)		
Concrete/Masonry, Smooth, Immersion & Atmospheric				
2 Cts. Macropoxy 646	5.0-10.0	(125-250)		
The systems listed above are representative of the product's use, other systems may be appropriate.				
WARRANTY				
The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams. NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.				

SILPRO

WELD-O-BOND™

Water-Based
Interior/Exterior
Ready to Use
Long Open Time

SILPRO, LLC / 2 NEW ENGLAND WAY / APER, MA 01432-1514 / 800-343-1501 / 978-772-4444 / FAX 978-772-7456 / WWW.SILPRO.COM

Silpro Weld-O-Bond™ Bonding Coat is specifically formulated for bonding Portland cement mixes to interior or exterior concrete or masonry surfaces and gypsum mixes to interior concrete, masonry, or plaster surfaces. Use **Weld-O-Bond™** to bond **Silpro Concrete Finish™**, **California Stucco™**, **Easy Patch®**, or **VO Patch®** to concrete or masonry walls.

ADVANTAGES

- Bonds new concrete and plaster to compatible surfaces.
- Bonds to old or new concrete, brick, stone, tile, drywall, wood, marble, concrete block, or rigid polystyrene foam insulation.
- May be applied over damp or dry surfaces as well as "green" concrete.
- Increases working time of mortars by reducing water absorption on porous surfaces.
- Eliminates time, expense, and added weight and thickness of mechanical systems of attachment.
- Heavy bodied — won't sag.
- Ready to use.
- Not affected by weather once covered.
- Non-flammable.

When patching, prime the chipped or spalled areas with **Weld-O-Bond™** to insure a strong, weather-resistant patch. Assures a strong bond between the new floor slab or topping coat and the old slab.

TEST DATA

Shear Bond Adhesion Test: Meets the requirements of ASTM-C-1059-91. Tests were performed using Test Method ASTM-C-1042-91 (Slant Cylinder).

Type I Latex (Interior Test) 490 psi.

Type II Latex (Exterior Test) 1360 psi.

SURFACE PREPARATION

High pressure power wash (3500 psi) or mechanically clean the surface to sound concrete, free of dirt, waxes, paint, curing compounds or any other bond-inhibiting materials. Glossy, painted surfaces should be dulled by sanding. New latex paint must have cured for 7 days and oil-based paint must have cured for 30 days. All paint or other coatings must be firmly adhered to surface.

TEST FOR SUITABILITY OF SURFACE

Brush or roll a coat of **Weld-O-Bond™** onto a small area of the prepared surface. Embed a 12" piece of fabric in the wet **Weld-O-Bond™** leaving a 4" tail. Allow to dry overnight. Pull the tail with a continuous pressure. If fabric and the **Weld-O-Bond™** pull off easily, then the surface is not suitable and further preparation and re-testing is necessary.

APPLYING

For masonry and concrete applications, dilute 1 gallon of **Weld-O-Bond™** with 1 quart of water. Stir **Weld-O-Bond™** before using. Do not shake or use mechanical mixer. Apply **Weld-O-Bond™** by brush, roller, or spray. Use a brush on all rough or uneven surfaces to get the **Weld-O-Bond™** into the crevices. Spray equipment should deliver 30-40 psi at nozzle and displace 6 cfm. Coat surface completely. Apply the concrete, mortar, plaster, or stucco while the **Weld-O-Bond™** is tacky or dry.

When bonding new plaster to old plaster or blueboard, dilute **Weld-O-Bond™** 1:1 with clean, potable water.

Note: **Weld-O-Bond™** will re-emulsify, only once, during a period of at least two weeks after it has been applied to the substrate when the moisture in the Portland cement or gypsum mix comes in contact with it. Keep the coating of **Weld-O-Bond™** dry (free from running water) until then.

Clean Up: Immediately clean tools with water. If **Weld-O-Bond™** is allowed to dry it must be mechanically removed.

For Customer Service, Call Silpro at 1-800-343-1501

CURING

Cure **all** cement work as recommended by the Portland Cement Association but do not allow standing water to remain on newly placed floors.

LIMITATIONS

- **Weld-O-Bond™** should be applied only when the temperature of the air, surface, and material is above 50°F. (10°C.).
- Do not allow **Weld-O-Bond™** to freeze in storage or shipment.
- **Do not apply:**
 - where hydrostatic pressure is present in the surface
 - over frozen concrete or dead plaster
 - over water-soluble coatings
 - over wallpaper.
- Keep surface free of dust and debris prior to the application of the topping.

PACKAGE SIZE

1 Gallon plastic jug (3.79 L.)

5 Gallon plastic pail (18.93 L.)

55 Gallon lined steel drum (208.18 L.)

COVERAGE PER GALLON:

Concrete block or brick: 150-200 sq. ft. (14-19 sq. m)

Concrete or dense masonry: 250-300 sq. ft. (23-28 sq. m)

SHELF LIFE

1 year, when stored in unopened containers at 50° F – 80° F.

GUARANTEE

Please call **SILPRO**, LLC for copy of guarantee.

CAUTION!

SILPRO offers products that may contain cement, latex, epoxy, and other chemicals. Please review the Safety Data Sheet before the use of this product.

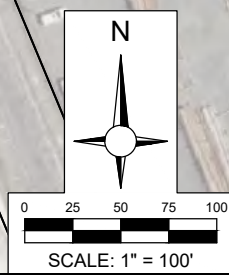
SILPRO

S:\ENVIRO\PROJECTS_2023\PROVIDENCE RIPTA OWS MELROSE STREET\CADD\3609523001-SITE.DWG, FIG 1



SITE LOCATION MAP
RHODE ISLAND PUBLIC TRANSIT AUTHORITY
269 MELROSE STREET
PROVIDENCE, RHODE ISLAND

Project Number: 2609523001	
Date: 10/24/2023	
Dwn. By: DH	Ckd. By: ZB
Scale: AS SHOWN	
Figure: 1	



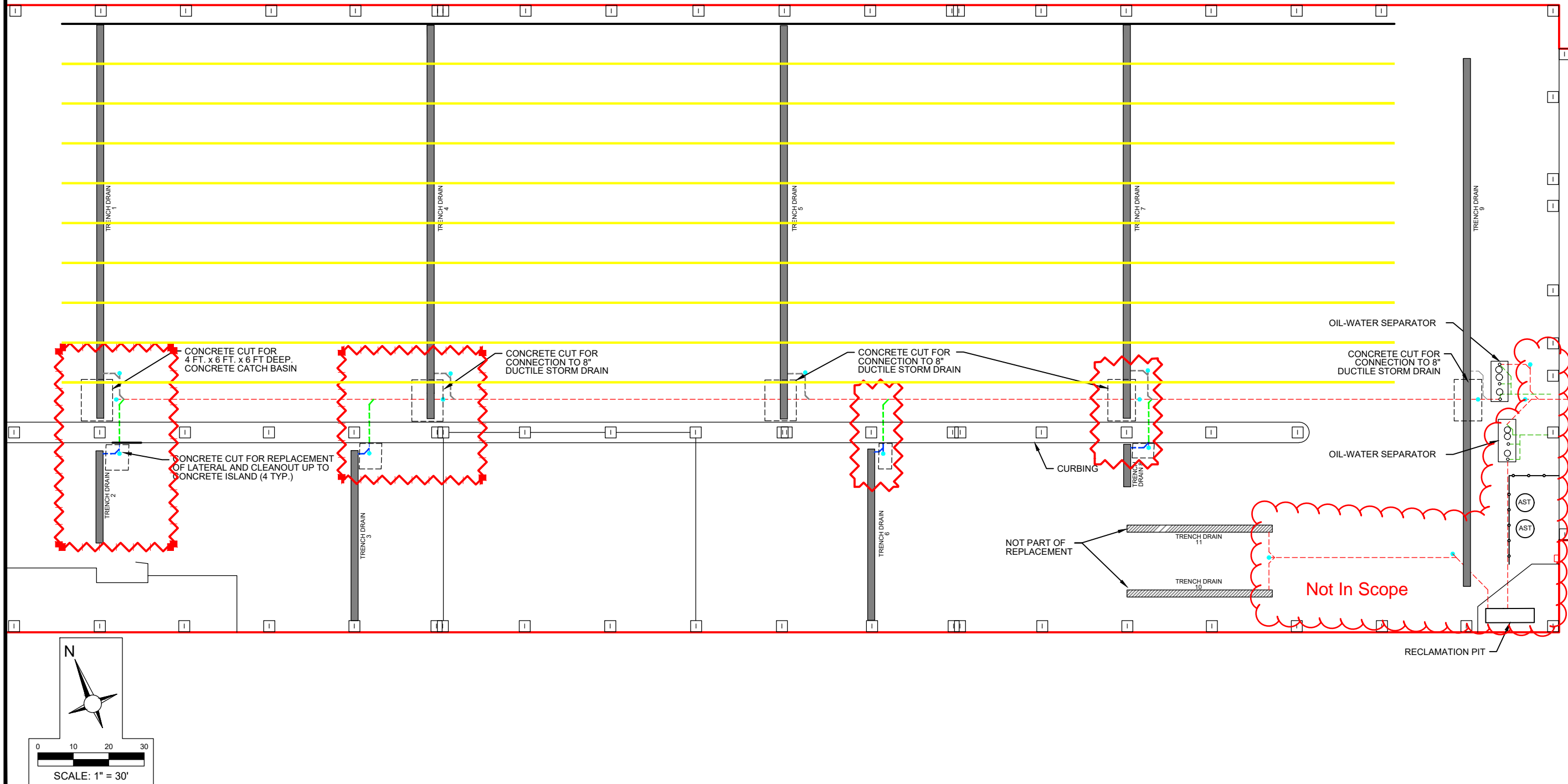
C:\USERS\DAVID.BRASSARD\DOCUMENTS\3609523001-SITE.DWG, FIG2

LEGEND:

- EXISTING 8" LATERAL SEWER LINE
- REPLACE EXISTING 4" LATERAL SEWER LINE
- ABANDONED EXISTING 4" LATERAL SEWER LINE
- REUSE EXISTING 4" LATERAL SEWER LINE
- GUARDRAIL
- FLOOR CLEAN OUT
- BUILDING COLUMNS
- EXISTING TRENCH DRAINS TO BE REMOVED (TOTAL WIDTH OF EXISTING CUT, 26 IN.)
- CONCRETE CUT FOR CONNECTION TO 8 IN. MAIN, PLACEMENT OF CB, AND EXPOSURE OF 4" LATERALS.
- PAINTED TRAVEL LANE LINES

GENERAL TRENCH DRAIN SYSTEM REMOVAL NOTES

- OWNER REQUESTING THAT UP TO 25 PIECES OF EXISTING GRATES THAT ARE IN THE BEST CONDITION TO BE SAVED AND STACK ON A PALLET FOR OWNER TO TRANSPORT TO ANOTHER FACILITY
- FINAL SITE RESTORATION INCLUDING POWER WASHING AND DEGREASING WITH SIMPLE GREEN CONCRETE AND DRIVEWAY CLEANER (PRESSURE WASHER CONCENTRATE) THE WHOLE GARAGE FLOOR WHEN DRAINS HAVE BEEN COMPLETED AND REPAINT ALL TRAFFIC LANE LINES WITH SHERWIN WILLIAMS PRODUCT MACROPOXY 646 AND TOPCOAT WITH SHERWIN WILLIAMS ARMOSEAL HS POLYURETHANE FLOOR ENAMEL PER MANUFACTURES INSTRUCTIONS (SEE BID SPECIFICATION FOR ADDITIONAL DETAILS).
- SAW CUT CONCRETE TO EXPOSE TRENCH LATERALS AND CLEANOUTS FOR TD-2, TD-3, TD-5, AND TD-8. REPLACE TRENCH LATERALS AND CLEANOUTS AND LATERAL LAYOUTS WITHOUT CUTTING CONCRETE CURBING AND ISLAND.



DEMOLITION - REMOVAL OF TRENCH DRAINS
RHODE ISLAND PUBLIC TRANSIT AUTHORITY
269 MELROSE STREET
PROVIDENCE, RHODE ISLAND

ADDENDUM 1

Project Number:
2609523001

Date:
02/19/2024

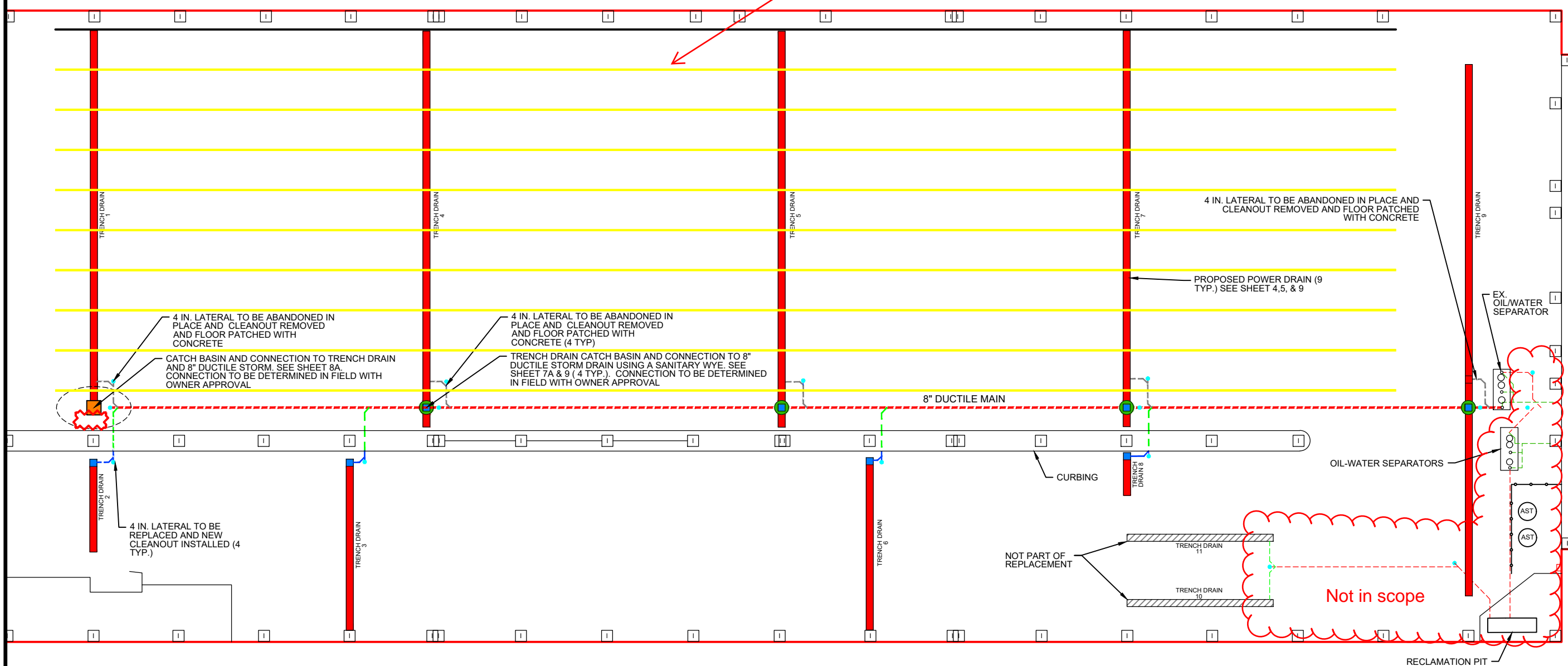
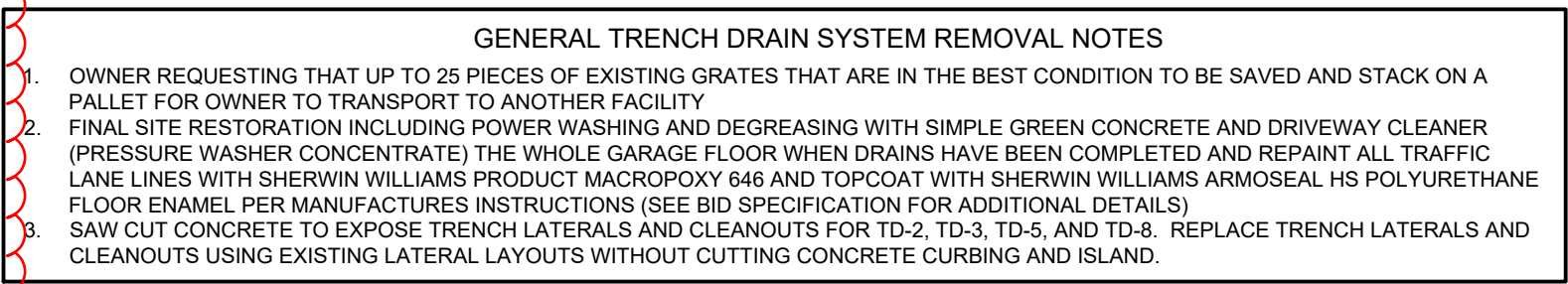
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ZB

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AS SHOWN

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PROPOSED TRENCH DRAIN LAYOUT
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PROVIDENCE, RHODE ISLAND

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Date: 02/20/2024	
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S:\ENVIRO\PROJECTS_2023\PROVIDENCE RI\PTA OWS MELROSE STREET\CADD\3609523001-SITE.DWG, FIG4

ADDENDUM 1

ATLAS

ADDENDUM 1

POWERDRAIN CROSS-SECTION DETAIL
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269 MELROSE STREET
PROVIDENCE, RHODE ISLAND

Project Number:
2609523001

Date:
10/24/2023

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DH ZB

Scale:
AS SHOWN

Sheet

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SPECIFICATION CLAUSE

POWERDRAIN S100K - LOAD CLASS F

GENERAL

THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE S100K CHANNEL SYSTEM WITH DUCTILE IRON EDGE RAILS WITH CONCRETE ANCHORS, AS MANUFACTURED BY ACO, INC.

MATERIALS

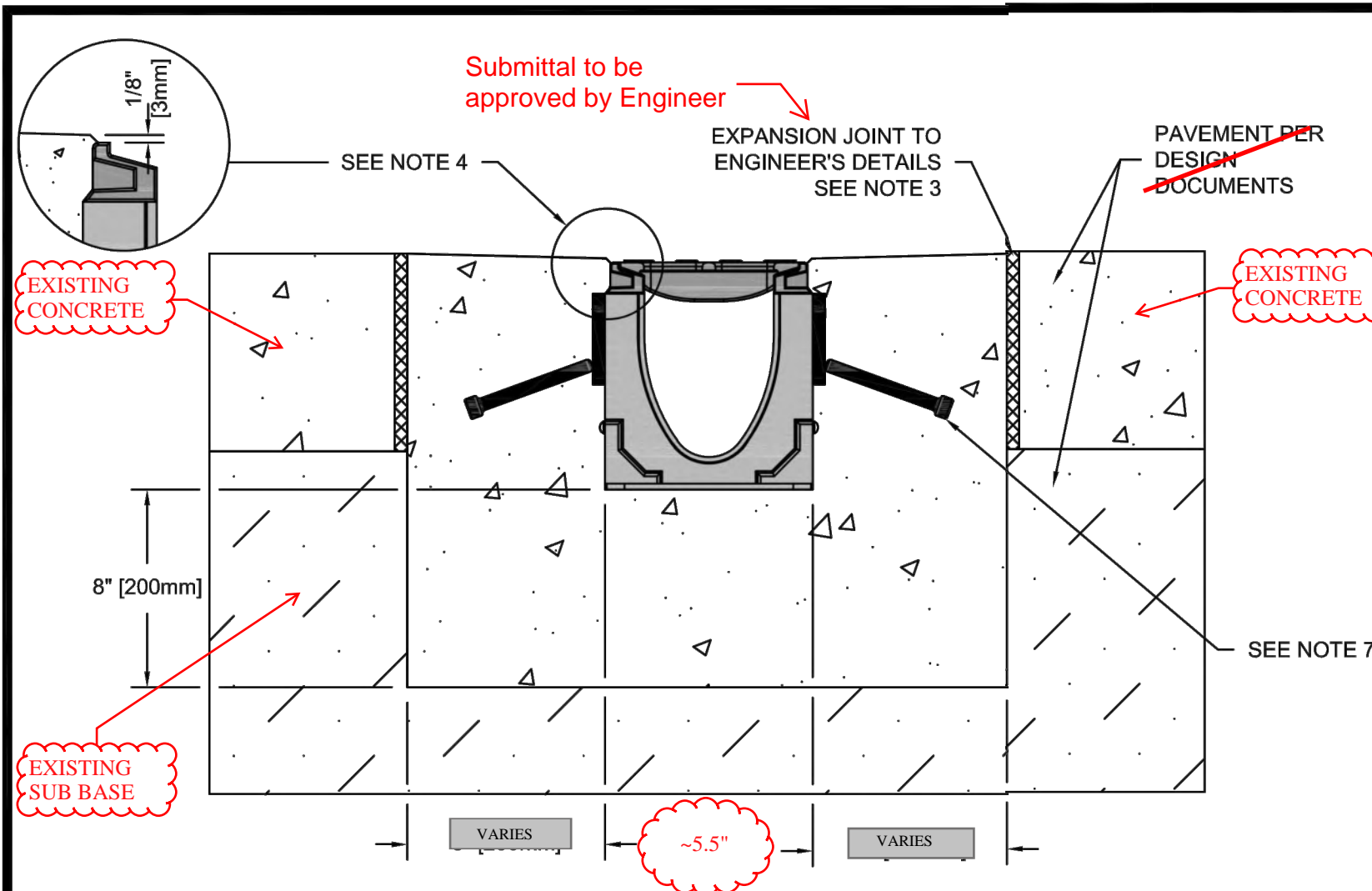
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN DUCTILE IRON EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 4" (100mm) NOMINAL INTERNAL WIDTH WITH A 6.3" (160mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING EITHER THE 'POWERLOK' BOLTLESS LOCKING SYSTEM OR THE 4 BOLT LOCKING OPTION. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.



NOTES:

- IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
- MINIMUM CONCRETE STRENGTH OF ~~4,000~~ 5,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
- EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
- THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
- CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. *ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.*
- REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.
- ACO, INC. RECOMMENDS USING THE POWERDRAIN CONCRETE ANCHORS (PART #97496) FOR LOAD CLASS F APPLICATIONS. TWO ANCHORS REQUIRED PER HALF METER LENGTH.

SK1-F-ECP



DATE: 11/07/16

POWERDRAIN - S100K - LOAD CLASS: F
W/ OPTIONAL CONCRETE ANCHORS
Exposed Concrete Pavement

INSTALLATION DRAWING - ACO DRAIN

ACO, Inc.

825 W. Beechcraft St
Casa Grande, AZ 85122
Tel: 520-421-9988
Fax: 520-421-9899

9470 Pinecone Dr.
Mentor, OH 44060
Tel: 440-639-7230
Fax: 440-639-7235

4211 Pleasant Rd.
Fort Mill, SC 29708
Tel: 440-639-7230
Fax: 803-802-1063

Arizona Tel: 888-490-9552 e-mail: sales@acousa.com Ohio Tel: 800-543-4764 www.acousa.com South Carolina Tel: 800-543-4764

DELETED FROM SYSTEM AND REPLACED WITH THE HARDWARE FOUND ON PAGE 7A



INSTALLATION INSTRUCTIONS

Read installation instructions first before installing. Check parts to ensure that no damage has occurred during transit and that no parts are missing. Also check the diameter of the pipe and the range marked on the saddle to ensure you have the proper size.

Style "CB" Sewer Saddle

Step 1

Place saddle on pipe.
4" Gasket ID: 5.20"
6" Gasket ID: 6.40"

Step 2

Wrap strap around pipe, with "This Side Out" as printed on strap. Slide the adjustable bolt assembly to a point which leaves most of the thread for tightening.

Step 3

Fold strap back against itself, placing free end between strap and pipe. (On small pipe, it may be necessary to fold loose end twice).

Step 4

Tighten nuts evenly, alternating between them until appropriate torque is reached (see below).

Significant flattening of PVC pipe indicates overtightening. In all cases wait 10 minutes and retorquer.

Nom. Pipe Diameter	Torque
6" - 12"	15-20 ft.-lbs.
14" - 48"	20-30 ft.-lbs.

Note: 25 ft.-lbs. = 12" wrench w/25 lbs. force

Step 5

Lubricate and insert branch end.

*The CB UN saddles are provided with a band clamp (hose clamp) which allows it to have a range. The band clamp comes with two adjusting screws which provide much greater clamping force than band clamps with only one adjusting screw. The band clamp needs to be assembled around the outlet and both adjusting screws tightened evenly.

Note: A pipe stop capable of withstanding 1,000 pounds of thrust is molded into the CB saddle gasket. Care must be taken during system design and installation to assure that this thrust limit is not exceeded.

CB SEWER SADDLE SEWER SADDLE

SUBMITTAL INFORMATION

* Patent #4494780



MATERIALS

CASTING

The saddle body is cast from ductile (nodular) iron, meeting or exceeding ASTM A 536, Grade 65-45-12.

GASKET

Gasket is made from virgin Styrene Butadiene Rubber (SBR) compounded for water and sewer service in accordance with ASTM D 2000 MBA 710.

PIPE STOP

A pipe stop is molded into the inside wall of the gasket. This pipe stop can hold up to 1000 lbs of force along the branch.

STRAP

Type 304 (18-8) Stainless Steel, 3 1/2 inches wide to

spread out clamping forces on the pipe. M.I.G. and T.I.G welds. Passivated for corrosion resistance.

BOLTS AND NUTS

Type 304 (18-8) Stainless Steel, passivated for resistance to corrosion. 1/2" National Coarse roll thread. Nuts coated to prevent galling.

COATINGS

Shop coat applied to cast parts for corrosion protection in transit. Fusion bonded epoxy, liquid epoxy and other coatings available on request.

WASHERS

Acetyl and stainless steel washers are used to reduce friction.

PRESSURE

Designed for sewer service, the Style CB saddle will hold a 7 psi air test when properly installed on a pipe within the correct outside diameter range.

DEFLECTION

When the CB saddle is installed properly the branch can accommodate up to 3 degrees of deflection.

SIZES

See catalog.

This information is based on the best data available at the date printed above. Please check with Romac for any updates or changes.



21919 20th Avenue SE • Suite 100 • Bothell, WA 98021
Phone (425) 951-6200 • 1-800-426-9341 • Fax (425) 951-6201

www.romac.com

Document #10-9-CB-0018 10/21/2012

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CB SEWER SADDLE DETAIL ADDENDUM 1
RHODE ISLAND PUBLIC TRANSIT AUTHORITY
269 MELROSE STREET
PROVIDENCE, RHODE ISLAND

Project Number:
2609523001

Date:
10/24/2023

Dwn. By:
DH

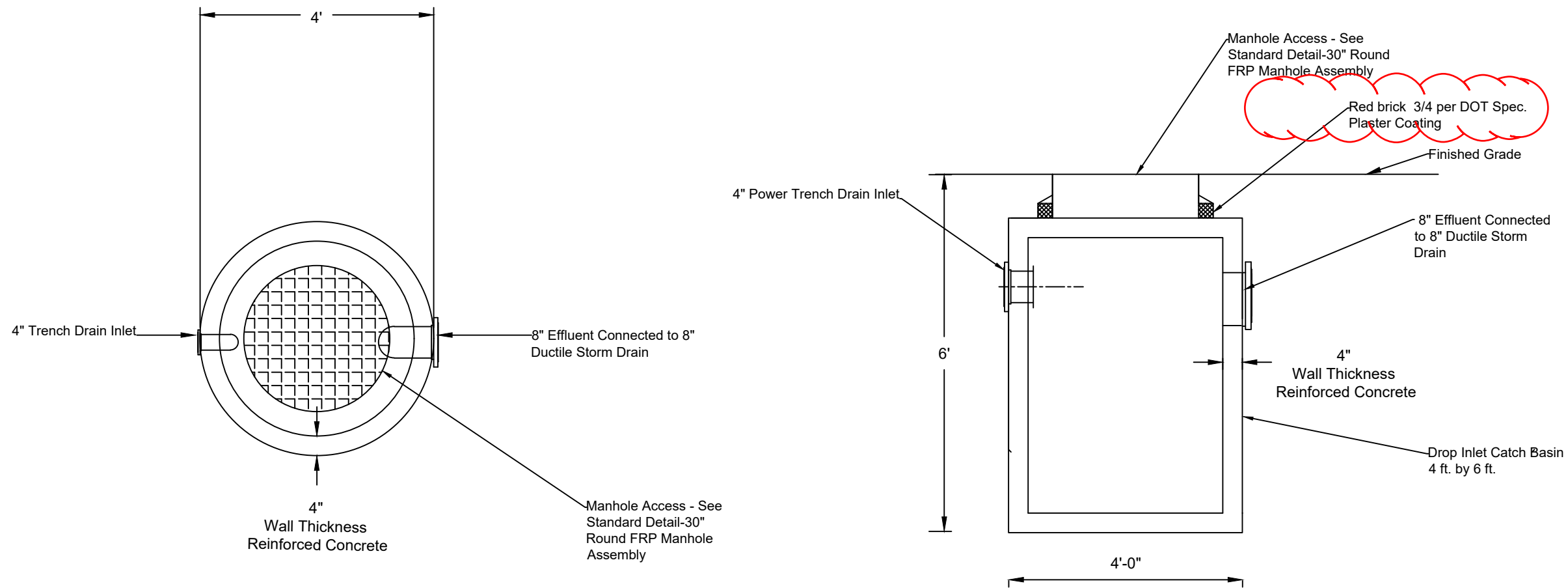
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S:\ENVIRO\PROJECTS_2023\PROVIDENCE RI\PTA OWS MELROSE STREET\CADD\3609523001-SITE.DWG, FIG8



Catch basin must be rated for a minimum of H-20 loading



ADDENDUM 1

TRENCH DRAIN 1 CATCH BASIN/MH
RHODE ISLAND PUBLIC TRANSIT AUTHORITY
269 MELROSE STREET
PROVIDENCE, RHODE ISLAND

Project Number:
2609523001

Date:
10/24/2023

Dwn. By: DH	Ckd. By: ZB
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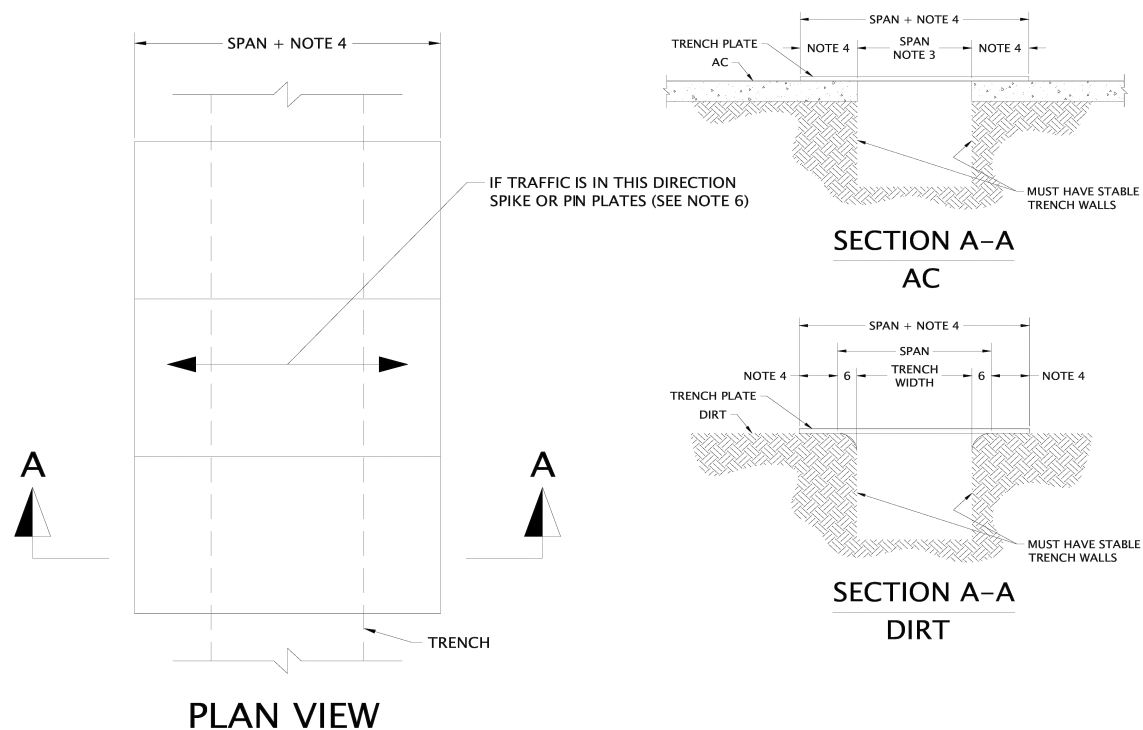
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NTS Steel Crossing Plates Tabulated Data

HS-20-44 LOADING		PLATE SIZE (FT x FT) / WEIGHT (LB)							
PLATE THICKNESS (IN)	MAX. ALLOW. SPAN (FT)	5' X 8'	5' X 10'	6' X 10'	8' X 10'	8' X 12'	8' X 15'	8' X 16'	8' X 20'
1"	4' - 6"	1634#	2042#	2450#	3267#	3920#	4901#	5227#	6534#
1 1/4"	7' - 0"	2042#	2552#	3063#	4084#	4901#	6126#	6534#	8168#
1 1/2"	10' - 0"	2450#	3063#	3675#	4901#	5881#	7351#	7841#	9801#



NOTES:

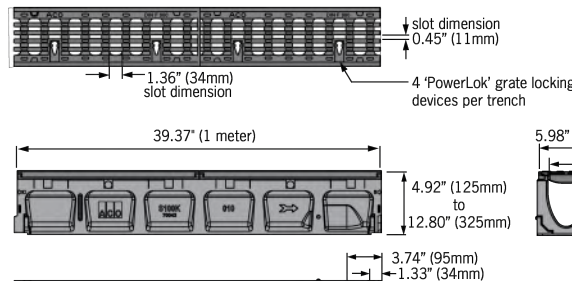
- PLATES ARE ASTM A36 MIN. STEEL, F_y - 36 KSI.
- PLATES ARE DESIGNED FOR HS20-44 LOADING ONLY, AND SHALL NOT BE ACCESSED BY CONSTRUCTION EQUIP. EXCEEDING HS20-44 LOADING LIMITS.
- THE SPAN IS FROM ASPHALT EDGE TO ASPHALT EDGE OR TRENCH WIDTH + 12".
- EDGE OVERLAP SHALL BE OBTAINED ON ALL EDGES OF EXCAVATION, AS FOLLOWS:
 - TRAFFIC SPEED LESS THAN 45 MPH: 18" MINIMUM
 - TRAFFIC SPEED OVER 45 MPH: 24" MINIMUM
- CHART IS BASED ON STABLE OR SHORED TRENCH, AS CONFIRMED BY CONTRACTOR'S COMPETENT PERSON OR ENGINEER. ANY TRENCHES IN C SOILS MUST BE FULLY SHORED OR APPROVED BY PROFESSIONAL ENGINEER.
- IF TRAFFIC IS PERPENDICULAR TO TRENCH AND IF SPEED EXCEEDS 25 MPH, PLATES MUST BE SECURED BY CONTRACTOR, TO PREVENT MOVEMENT.
- USE COLD PATCH ASPHALT ALONG ALL EDGES OF STEEL PLATE TO ENSURE SMOOTH TRANSITION FOR TRAFFIC. IF COLD PATCH IS USED, PLACE PAPER OR EQUAL APPROVED BY OWNER UNDER COLD PATCH TO PREVENT STAINING OF CONCRETE.
- CONTRACTOR'S COMPETENT PERSON IS RESPONSIBLE FOR USE OF THIS TABULATED DATA WITHIN LIMITS, AND ENSURING SAFE CONDITIONS FOR TRAFFIC AT ALL TIMES.

Or engineer approved equal.
Use only after concrete pour for the 28 days cure time

ACO DRAIN

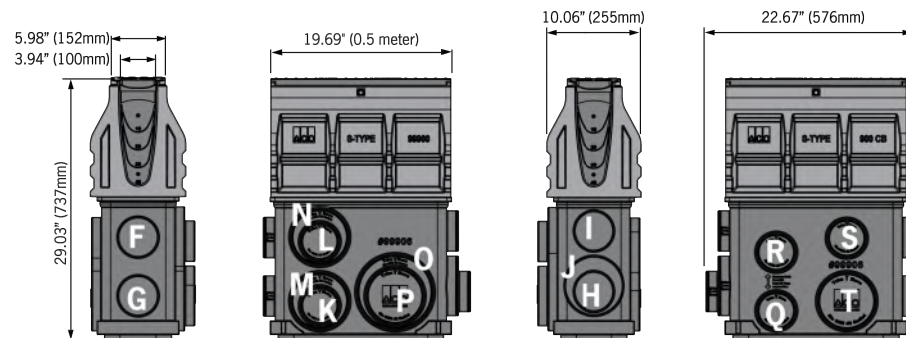
PowerDrain - S100K iron edged channel system with longitudinal grate (ADA)

One meter channel



Knock-outs included on every 5th channel

Type 901D In-line catch basin



Total capacity = 10.49 gallons.

Outlet flow rates

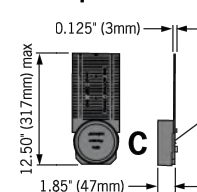
Outlet	Product	Outlet size (Sch. 40)	Invert Depth	GPM	CFS
A	Bottom outlet - SK1-00	4" round	3.94"	108	0.24
A	Bottom outlet - SK1-40	4" round	11.81"	187	0.42
B	Bottom outlet - SK1-00	6" oval	3.94"	177	0.39
B	Bottom outlet - SK1-40	6" oval	11.81"	306	0.68
C	End outlet - SK1-20	4" round	7.87"	132	0.29
C	End outlet - SK1-40	4" round	11.81"	171	0.38
D	SK1-308-6 6" outlet cap	6" oval	9.84"	233	0.52
E	SK1-408-6 6" outlet cap	6" oval	11.81"	264	0.59
F	Type SK1-901D	4" round	19.87"	230	0.51
G	Type SK1-901D	4" round	26.37"	268	0.60
H	Type SK1-901D	4" round	25.87"	266	0.59
I	Type SK1-901D	4" round	19.16"	226	0.50
J	Type SK1-901D	6" round	26.29"	593	1.32
K	Type SK1-901D	4" round	27.22"	272	0.61
L	Type SK1-901D	4" round	20.11"	231	0.51
M	Type SK1-901D	6" round	27.79"	611	1.36
N	Type SK1-901D	6" round	20.65"	514	1.15
O	Type SK1-901D	6" round	27.79"	1065	2.37
P	Type SK1-901D	6" round	27.22"	601	1.34
Q	Type SK1-901D	4" round	27.79"	276	0.62
R	Type SK1-901D	4" round	21.30"	239	0.53
S	Type SK1-901D	4" round	19.73"	228	0.51
T	Type SK1-901D	6" round	27.79"	610	1.36

Note: These are the pipe flow rates at the specified outlet, NOT channel flow rates.
Catch basin flow rates are without trash bucket - using trash bucket reduces flow.

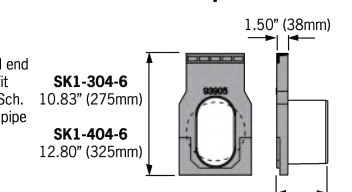
April 2018

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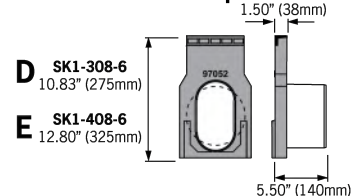
End Caps



6" Oval inlet cap

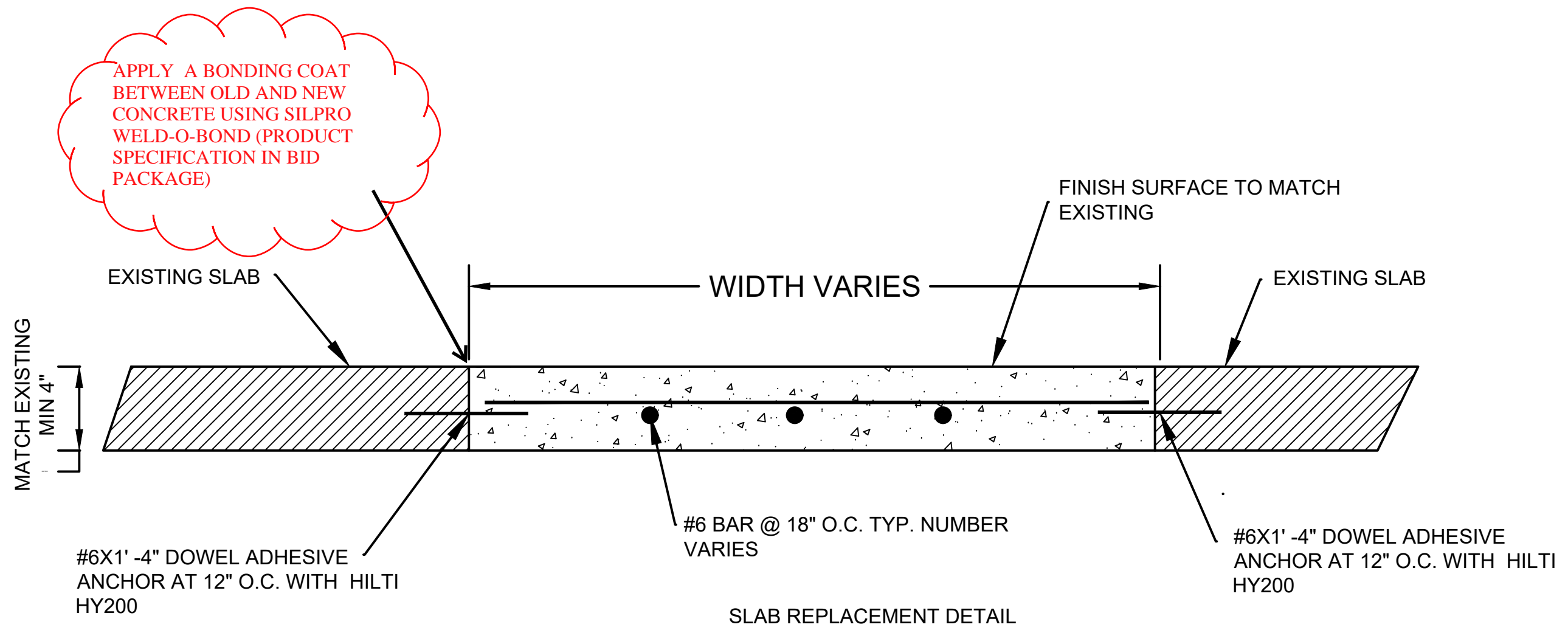


6" Oval outlet cap



ACO Specification Information

S:\ENV\RO\PROJECTS_2023\PROVIDENCE RI\PTA OWS MELROSE STREET\CADD\3609523001-SITE.DWG, FIG-

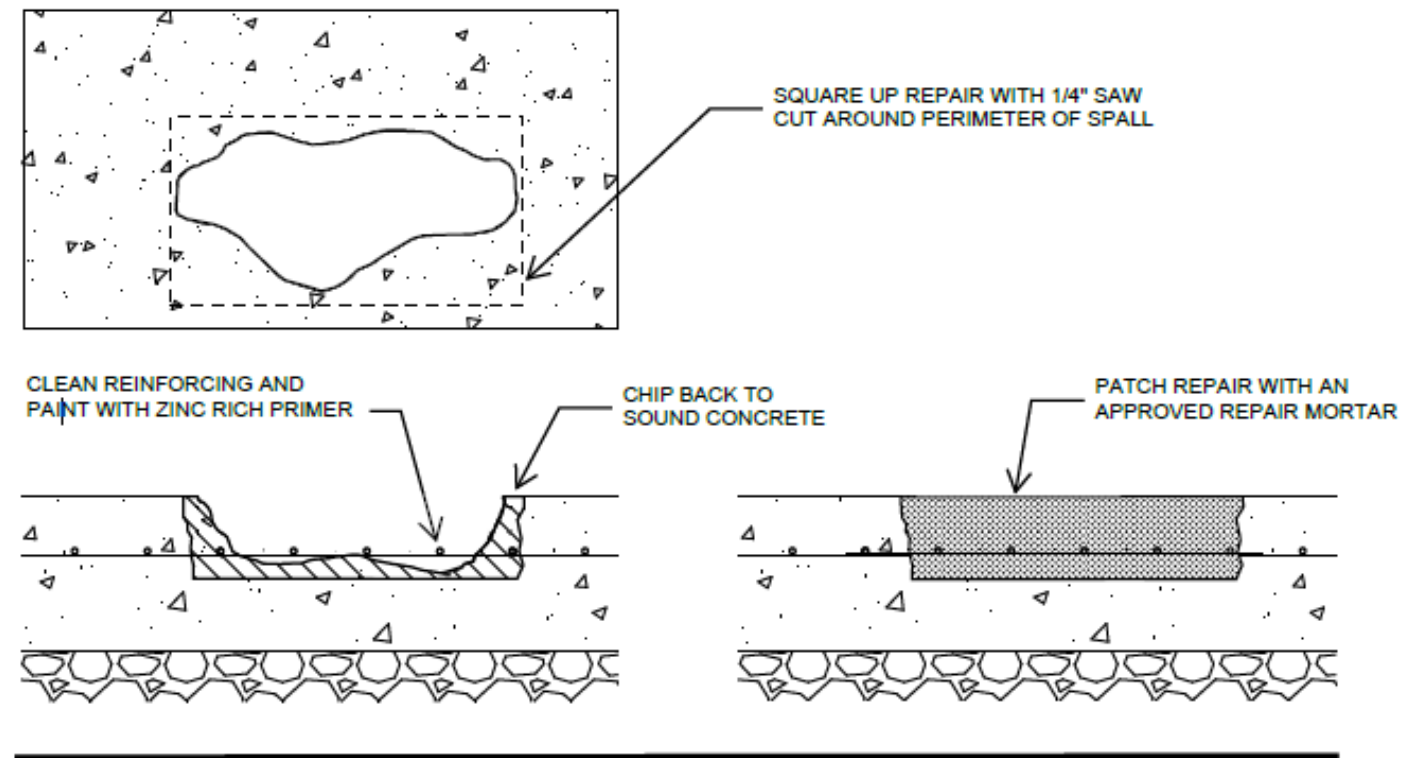


REPLACEMENT CONCRETE PATCH
RHODE ISLAND PUBLIC TRANSIT AUTHORITY
269 MELROSE STREET
PROVIDENCE, RHODE ISLAND

ADDENDUM 1

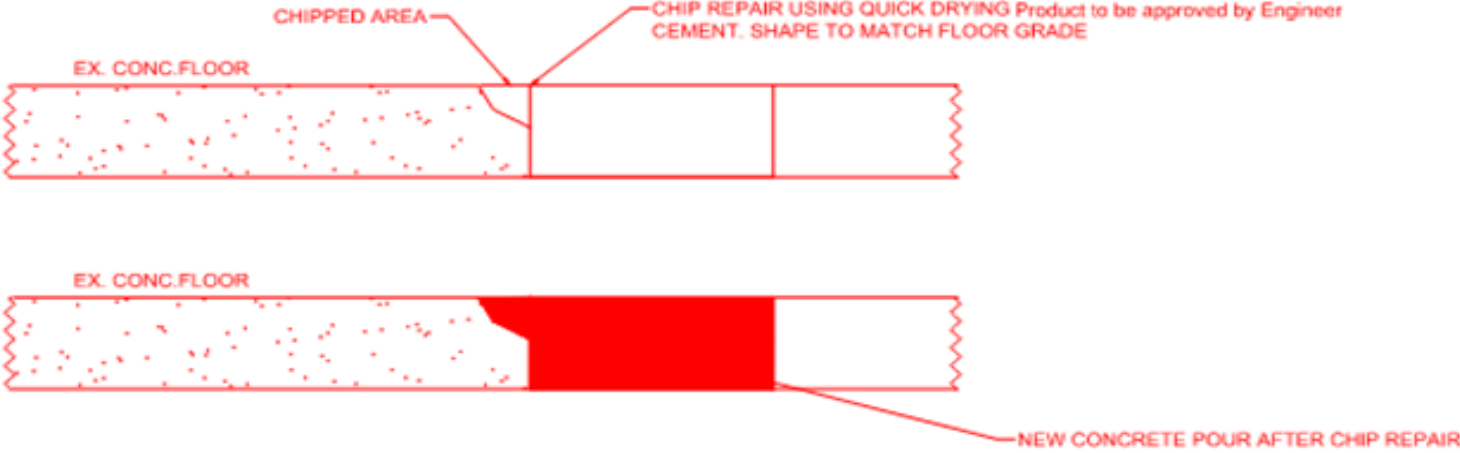
Project Number: 2609523001	
Date: 10/24/2023	
Dwn. By: DH	Ckd. By: ZB
Scale: NTS	
Sheet 10A	

S:\ENV\RO\PROJECTS_2023\PROVIDENCE RI\PTA OWS MELROSE STREET\TRENCH DRAIN DESIGN\PDF\3609523001-SITE 11A.DWG, FIG-

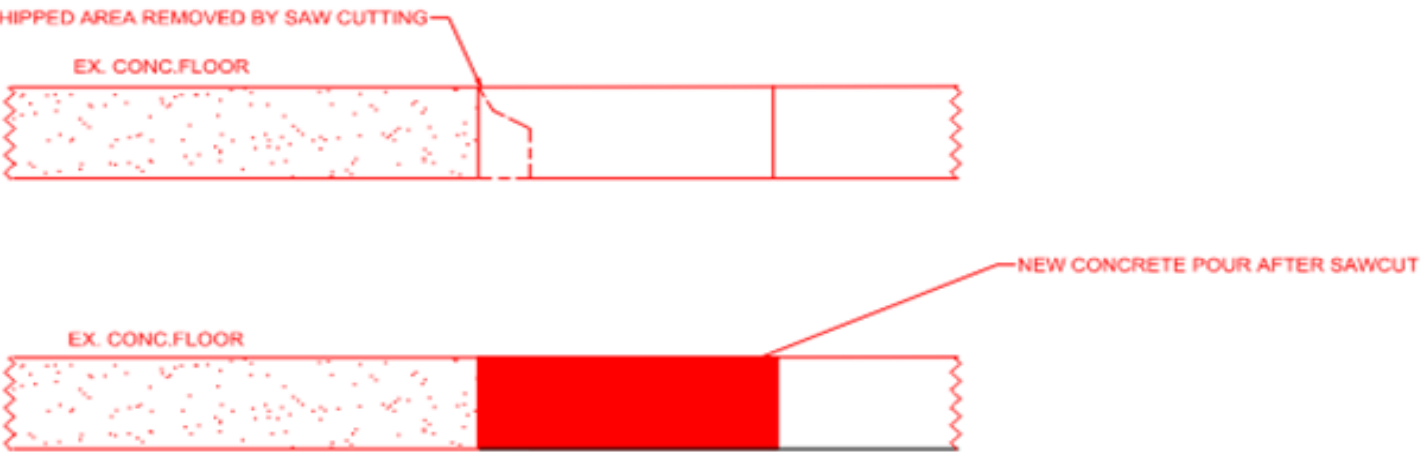


PARTIAL DEPTH SLAB REPAIR DETAIL

DETAIL A - REPAIR OF CHIPPED CONCRETE - PATCH CHIP (SEE CAST IN CONCRETE SPEC)



DETAIL B - REPAIR OF CHIPPED CONCRETE - SAW CUTTING (SEE CAST IN CONCRETE SPEC)



CONCRETE CHIP REPAIR ADDENDUM 1

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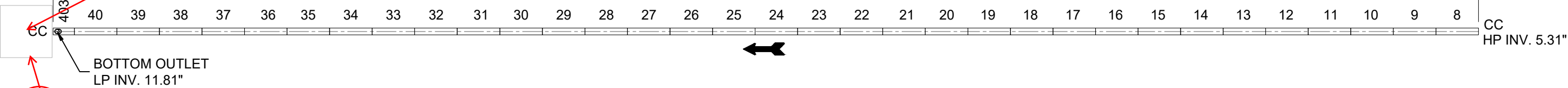
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Scale: NTS	
Sheet	

11A

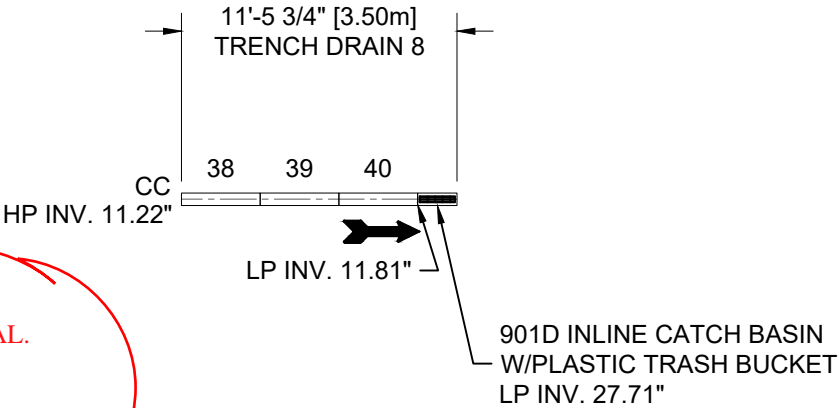
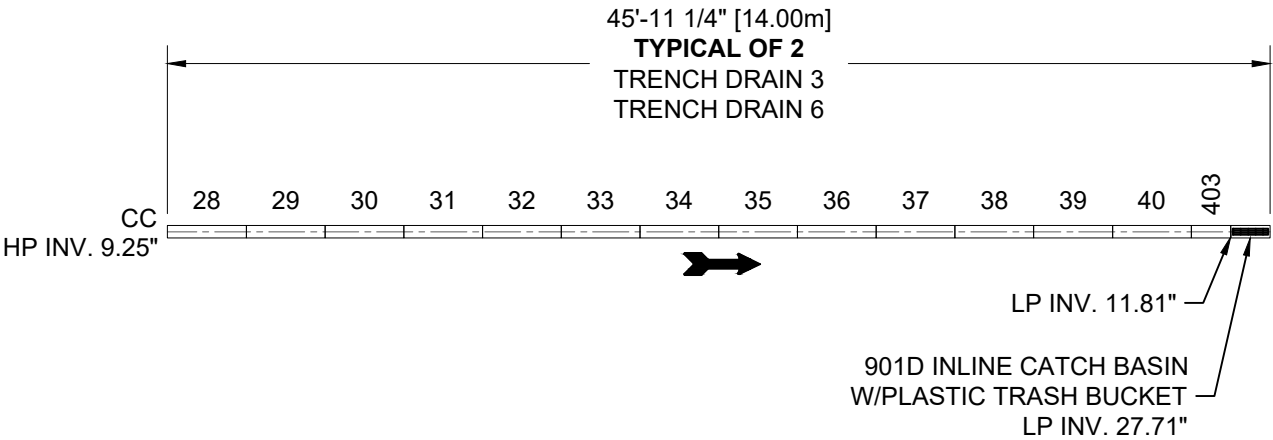
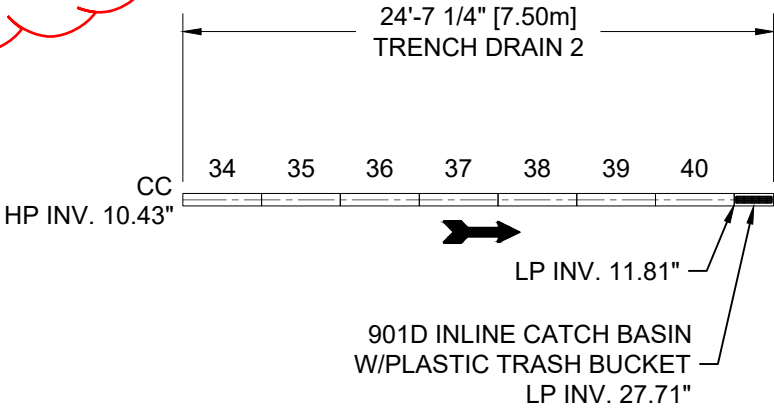
Xref: \\Company Logo\\Atlas TB Logo.dwg

Connection of trench drain and 8" main to the CB to be determined in the field and approved by the Owner and Engineer (see Sheet 8A and Notes).

103' [31.4m]
TRENCH DRAIN 1





4' x 4' x 6' Catch basin (see Sheet 8A)



NOTE
1. FIELD DETERMINATION OF CB CONNECTIONS MUST BE WITH ENGINEER APPROVAL. REQUIRES ADEQUATE ADVANCED NOTIFICATION TO ENGINEER AT A MINIMUM OF TWO WORKING DAYS.
2. ALL SHOP DRAWINGS TO BE APPROVED BY ENGINEER PRIOR TO CONTRACTOR SUBMITTAL TO MANUFACTURER.

ADDENDUM 1

LEGEND		RIPTA PROVIDENCE, RI		TRENCH DRAIN LAYOUT I			
<div><div><div>———— CHANNEL</div><div>----- CENTER LINE</div><div> INSTALLATION DIRECTION OF CHANNEL</div></div><div><div>IC = INLET CAP</div><div>CC = CLOSING CAP</div><div>OC = OUTLET CAP</div><div>INV = INVERT</div><div>HP = HIGH POINT</div><div>LP = LOW POINT</div><div>BO = BOTTOM OUTLET</div></div></div>		DRAWN BY ZD	EMAIL Zachary.DeLaat@aco.com	SYSTEM(S) S100K GRATE(S) SK DUCTILE IRON SLOTTED			
		REVISIONS					
		NO.	DESCRIPTION	DATE	BY		
		1					
		DATE 10/30/2023	CHECKED BY AA	2			
		SHEET NO. SHEET 2 OF 3	DESIGN SERV. NO. REV. 1231256C	3			



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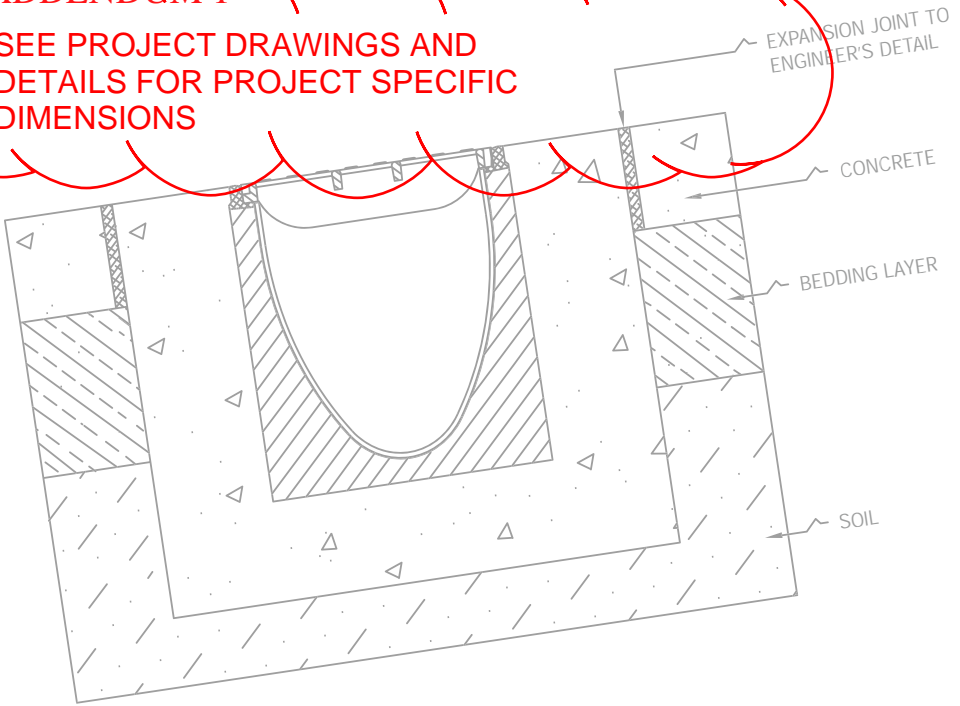
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Installation Guidelines



ADDENDUM 1

SEE PROJECT DRAWINGS AND
DETAILS FOR PROJECT SPECIFIC
DIMENSIONS



Grated Polycrete® Channels

Site Installation Manual

Installation Sections

Installed **Polycrete®** Channels should incorporate the following:

1. Correct grate type.
2. Correct channel type and size.
3. Minimum grade 25MPa compressive strength cement concrete encasement.

AS 3996 Load Class	Encasement Dimension
Class A–B	100mm
Class C–D	150mm
Class E–G	200mm

It is recommended that the concrete encasement conforms to the minimum dimensions shown in the table above and illustrations to the right.

These illustrations are a guide for average ground conditions only.

If more than one pour is cast for the concrete encasement, they must be adequately bonded to each other for structural continuity.

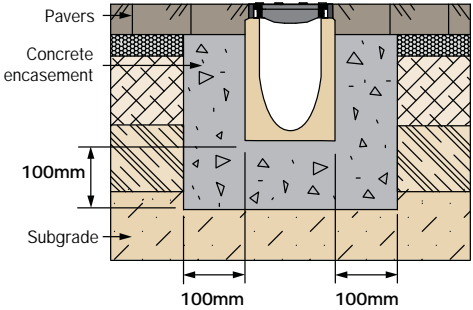
Refer to website for access to the complete set of installation drawings.

Specific site conditions may require an increase in these dimensions and/or reinforcement. If in doubt, seek professional engineering advice.

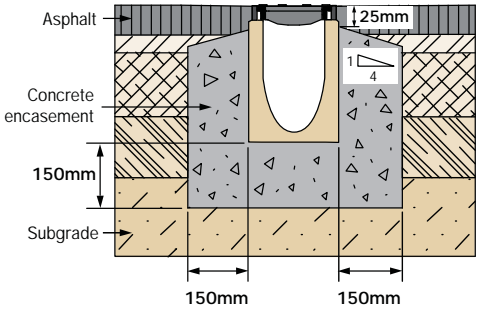
It is the customer's responsibility to ensure the concrete encasement is designed for the application.

Specifiers of Polycrete® Channels should download ACO's Specification Design Brief from the website.

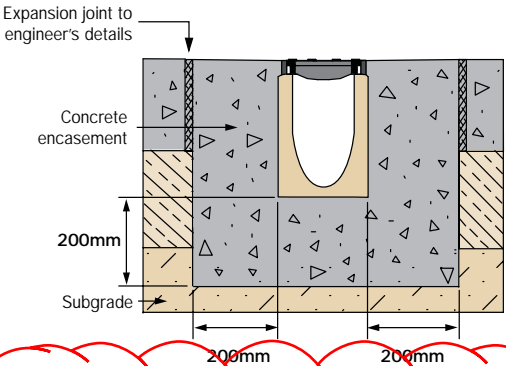
Pavers – AS 3996 Class A – B



Asphalt – AS 3996 Class C – D



Concrete – AS 3996 Class E – G

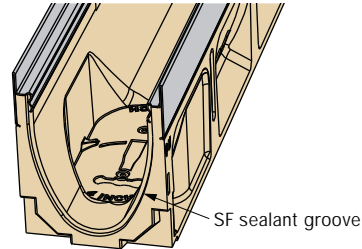


SEE PROJECT DETAILS

5 Channel Setup

Ensure string-line is set at the top edge of required channel height. Start installing channel from outlet or pit end. Ensure arrows on the channel walls are pointing in the direction of the intended flow (refer to page 3).

If channel joints are to be sealed, apply a bead of appropriate flexible sealant in the SF sealant groove.



Four methods to position channels

A. Patty Method

Channels are laid to a string-line and placed on concrete patties with a low slump. Two concrete patties required for each channel.



~~B. Continuous Wet Base Method~~

~~Channels are laid to a string-line on a continuous wet concrete base with a medium to low slump.~~



C. Installation Device Method

Channels are set up on installation devices that clamps the channels together, braces the channels to prevent movement and stops them floating during the single concrete pour.



D. Hanging Method

For retrofit constructions, channels are hung and anchored to the existing slab. For new constructions, channels can be hung on formwork.



~~B. Continuous Wet Base Method~~

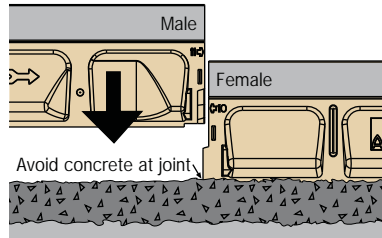
For new and retrofit construction with a wet concrete base which is able to support the weight of the channel to ensure the channel does not settle below the required height.

1. Set up a string-line to represent the top edge of either the left or right channel edge rail at the proposed finished height. Install in-line pit (or outlet channel) on bed of concrete to required height (see page 4, for concrete dimensions). Connect and seal outlet pipe.
2. Using low to medium slump concrete, only mix or pour enough concrete to a length that you can confidently lay channels on before the concrete hardens and becomes unworkable.

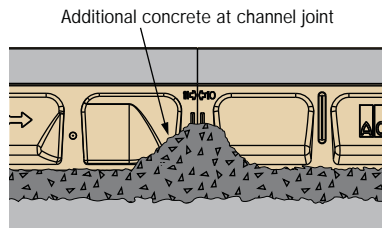
NOTE: Concrete base should be sized to provide required concrete encasement.

3. Lower channel vertically onto wet concrete base and position to correct height and alignment ensuring tight connection to previous channel. Ensure no concrete material is trapped in the joint.

Check level across both edge rails of each channel with a spirit level before the next channel is set in place.

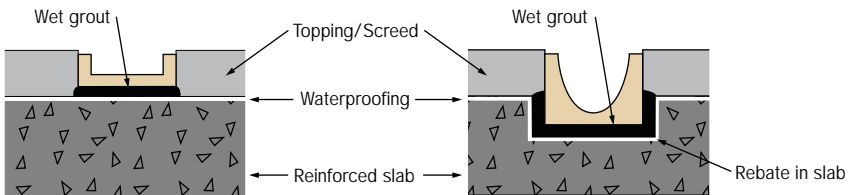


4. Add concrete at the channel joints to partially cover and fill pockets on side of channel – this minimises the risk of movement or floating during concrete pour.
5. Continue by repeating steps 2, 3 and 4 for the full length of the drainage run.



Suspended Slabs

Channels to be set up on a continuous wet base of high strength, non-shrink grout.

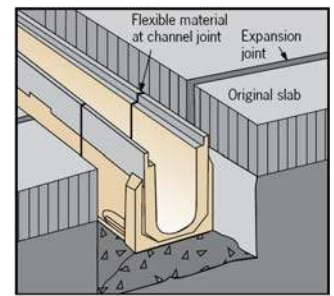


For shallow SlabDrain and MiniKlassik channels, set up the channels on top of the reinforced slab.

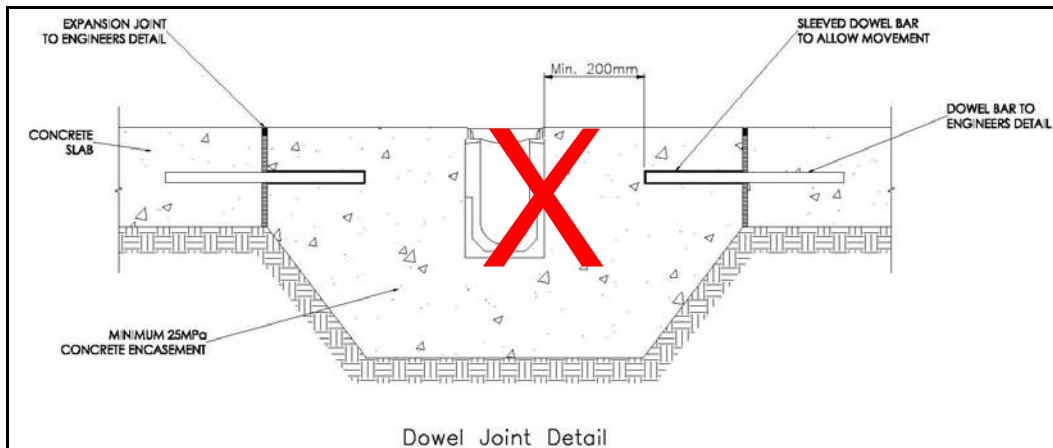
For deeper KlassikDrain, PowerDrain and TraffikDrain channels, form a rebate in the reinforced slab.



Transverse contraction/expansion joints (cutting across the trench run) to prevent surface cracking in the concrete slab may be required. Ideally, such joints should be positioned at channel joints. Alternatively, a cut may be made at the appropriate location along the channel and sealed with flexible sealant, see adjacent illustration (right).



Dowels may be specified by the engineer if differential settlement is a concern. If the joint is dowelled, effective debonding should be provided. Dowels must be horizontal.



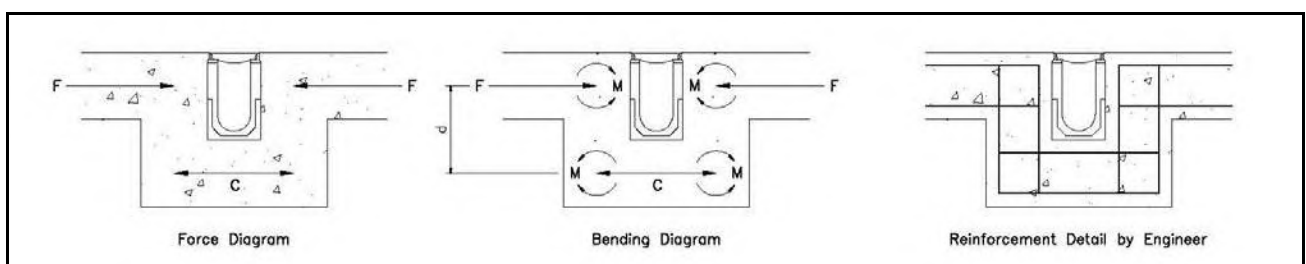
Reinforcement

The concrete encasement may require reinforcement for a number of reasons. Three common reasons are discussed below.

1. The engineer may choose to reinforce the encasement to increase its flexural strength. This is not uncommon for long trench runs particularly if ground movement is anticipated.
2. Reinforcement may also be incorporated for the control of cracking along the encasement.
3. In concrete slabs if longitudinal expansion joints are not a practical solution, then the reinforcement design must be carefully considered. This is because very high forces can arise from thermal movement in the concrete slab and the ACO Drain System is not designed to restrain these forces. The encasement supporting the system must either be structurally designed to direct the stresses away from the drain or physically isolated with the inclusion of longitudinal expansion joints.

Considering this scenario, the force (F) from thermal movement must be transferred via the haunch to the concrete base below the ACO Drain. Even if the concrete base below the ACO Drain can take the compressive forces (C) the force in the expanding slab is not in the same plane. Thus a couple, or moments (M) will occur. In order to transfer the force (F) into the concrete base below, steel reinforcement must be designed to withstand the bending stress (M) produced by the couple ($F \times d$) and transfer it away and below the trench.

Note, the deeper the trench the higher the bending stresses, resulting in a heavier reinforcement solution.



If steel reinforcement is required, ACO recommends seeking structural engineering advice.