



# 12"Ø SLOTTED DRAIN

## CENTRAL WAREHOUSE & MAINTENANCE FACILITY

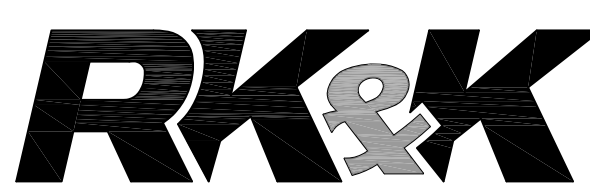
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NO.	REVISIONS	DATE

TRENCH DRAIN  
DETAILS

DATE	04/29/11
SCALE	N/A
DWN. KAB	CHK. WSS
PROJ. No.	
DWG. No.	

C012

INDEX:	
1	COVER SHEET
2	PLAN VIEW
3	DETAILS

THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (5) PAGES.

CUSTOMER \_\_\_\_\_ DATE \_\_\_\_\_

- NOTES:
- 1) ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF GRATES, SHALL BE VERIFIED BY THE ENGINEER PRIOR TO RELEASING FOR FABRICATION.
  - 2) ALL CUTS, AND WELDS SHALL BE PAINTED WITH A ZINC-BASED PAINT.
  - 3) IN SITUATIONS WHERE A FINE-GRAINED BACKFILL MATERIAL IS USED ADJACENT TO THE PIPE SYSTEM, AND ESPECIALLY IN SITUATIONS INVOLVING HIGH GROUNDWATER TABLES, CONSIDERATION SHOULD BE GIVEN TO THE USE OF GASKETED PIPE JOINTS. AT THE VERY LEAST, THE PIPE JOINTS SHOULD BE WRAPPED IN A SUITABLE, NON-WOVEN GEOTEXTILE FABRIC TO PREVENT INFILTRATION OF FINES INTO THE PIPE SYSTEM.
  - 4) ALL FITTINGS COMPLY WITH ASTM A998.
  - 5) SYSTEM MADE FROM 12"Ø, 2 2/3"x1/2", ALT2, 16GA, CMP.
  - 6) CMP IS SUBJECT TO MANUFACTURERS TOLERANCES.

SPECIFICATION FOR CORRUGATED STEEL PIPE - ALUMINIZED TYPE 2 STEEL:

SCOPE:  
THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIALS:  
THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M 216 OR ASTM A 929.

THE GRATE AND PLATE EXTENDERS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 123 EXCEPT WITH A 2oz. GALVANIZED COATING.

PIPE FABRICATION:  
THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M-36 OR ASTM A 760, THE PIPE SIZES, GAUGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

THE GRATES SHALL BE MANUFACTURED FROM ASTM A1011, GRADE 36 STEEL. THE SPACERS AND BEARING BARS (SIDES) SHALL BE 3/16" MATERIAL ± 0.008".

THE GRATE SHALL BE FILLET WELDED WITH A MINIMUM WELD 1" LONG TO THE CSP ON EACH SIDE OF THE GRATE AT EVERY OTHER CORRUGATION.

THE SPACERS SHALL BE ON 6" CENTERS AND WELDED ON BOTH SIDES TO EACH BEARING BAR (SIDES) WITH FOUR (4) 1-1/4" LONG 3/16" FILLET WELDS ON EACH SIDE OF THE BEARING BAR.

THE PLATE EXTENDER SHALL BE 7 GAGE STEEL MEETING ASTM A761.

THE ENGINEER MAY CALL FOR TENSILE STRENGTH TEST ON THE GRATE IF THE GRATE IS NOT IN COMPLIANCE WITH SECTION 3.2. IF TENSILE STRENGTH TEST ARE CALLED FOR, MINIMUM RESULTS FOR AN IN-PLACE SPACER PULLED PERPENDICULAR TO THE BEARING BAR SHALL BE:

T = 12,000 LBS FOR 2-1/2" GRATE  
T = 15,000 LBS FOR 6" GRATE

SPECIFICATION FOR CORRUGATED STEEL PIPE - CONT.:

THE GRATES SHALL BE VERTICAL (STRAIGHT SIDES) WITH A 1-3/4" OPENING IN THE TOP AND 8"C.C. SPACERS UNLESS SHOWN OTHERWISE ON THE PLANS. THE TOP AND BOTTOM GRATE SHALL BE 2-1/2" OR 6" HIGH AS NEEDED.

MANUFACTURING TOLERANCES

VERTICAL ELBOW - ±3/8"  
HORIZONTAL ELBOW - ±5/8"  
TWIST - ±1/2"

CONTECH METHOD #1 FOR VARIABLE HEIGHT GRATES, OR AN APPROVED EQUAL SHALL BE USED TO ACHIEVE THE SLOPE SHOWN ON THE PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING & ASSEMBLY:  
SHALL BE IN ACCORDANCE WITH NCSPA'S (NATIONAL CORRUGATED STEEL PIPE ASSOCIATION) RECOMMENDATIONS.

THE CORRUGATED STEEL PIPE SHALL HAVE A MINIMUM OF TWO REROLLED ANNULAR ENDS.

THE SLOTTED DRAIN BANDS SHALL BE MODIFIED HUGGER BANDS TO SECURE THE PIPE AND PREVENT INFILTRATION OF THE BACKFILL.

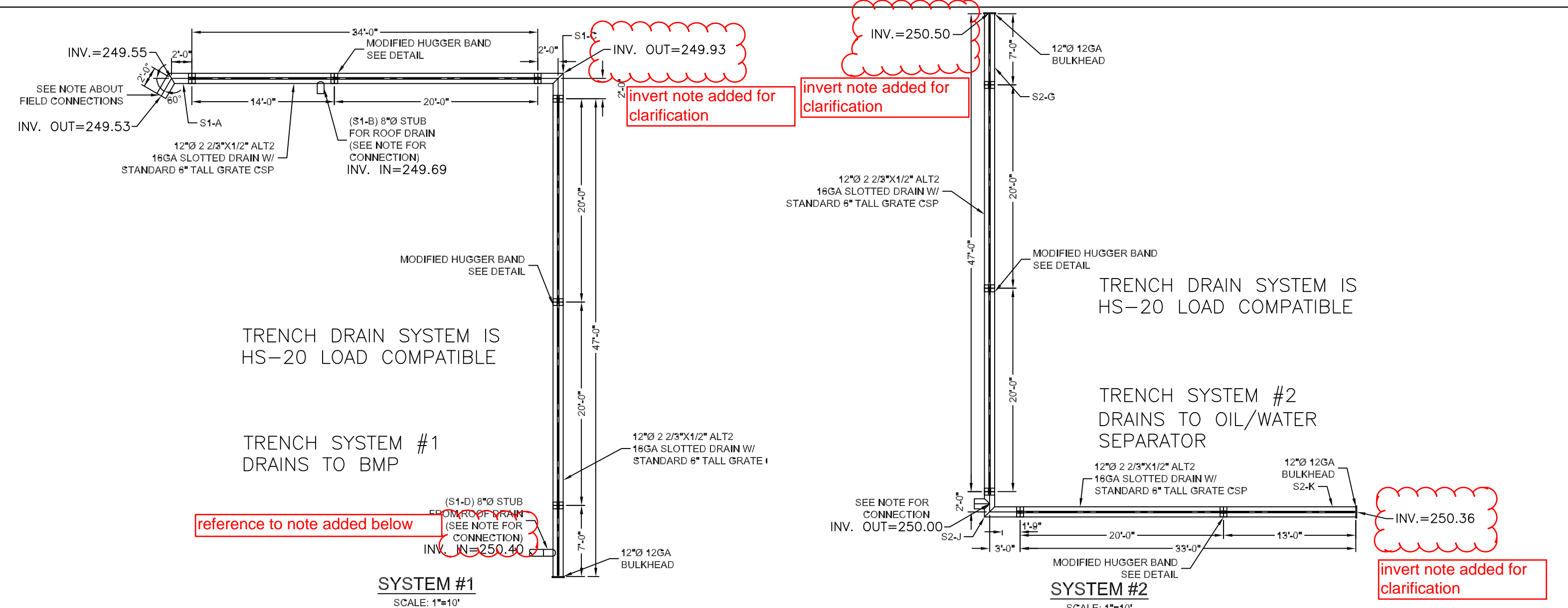
WHEN THE SLOTTED DRAIN IS Banded TOGETHER, THE ADJACENT GRATES SHALL HAVE A MAXIMUM 3" GAP.

INSTALLATION:  
SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A 798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS, THE CONTRACTOR MUST BRING THEM TO THE ATTENTION OF THE PROJECT ENGINEER.

IT IS ALWAYS THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

CONSTRUCTION LOADS:  
CONSTRUCTION LOADS MAY BE HIGHER THAN FINAL LOADS. FOLLOW THE MANUFACTURERS OR NCSPA'S GUIDELINES.

CONTECH PROJECT ID # 439270



SYSTEM #1 PIPE SCHEDULE						
12"Ø 16GA ALT2 2 2/3"x1/2" SLOTTED DRAIN						
PIPE #	PIPE LENGTH	GRATE HEIGHT AT INLET (H1)	GRATE HEIGHT AT OUTLET (H2)	GRATE LENGTH	TOP GRATE	BOTTOM GRATE
STANDARD PIECES	20'-0"	6"	6"	19'-6"	6"	6"
S1-A	4'-0"	6"	6"	19'-6"	6"	6"
S1-B	14'-0"	6"	6"	19'-6"	6"	6"
S1-B1	1'-0"	6"	6"	19'-6"	6"	6"
S1-C	4'-0"	6"	6"	19'-6"	6"	6"
S1-D	7'-0"	6"	6"	19'-6"	6"	6"
S1-D1	1'-0"	6"	6"	19'-6"	6"	6"
*	BULKHEAD	12"Ø 12GA BULKHEAD @ INLET				
QTY	5					

SYSTEM #2 PIPE SCHEDULE						
12"Ø 16GA ALT2 2 2/3"x1/2" SLOTTED DRAIN						
PIPE #	PIPE LENGTH	GRATE HEIGHT AT INLET (H1)	GRATE HEIGHT AT OUTLET (H2)	GRATE LENGTH	TOP GRATE	BOTTOM GRATE
STANDARD PIECES	20'-0"	6"	6"	19'-6"	6"	6"
S2-G	7'-0"	6"	6"	19'-6"	6"	6"
S2-J	5'-0"	6"	6"	19'-6"	6"	6"
S2-J1	1'-0"	6"	6"	19'-6"	6"	6"
S2-K	15'-0"	6"	6"	19'-6"	6"	6"
*	BULKHEAD	12"Ø 12GA BULKHEAD @ INLET				
QTY	5					

specifications for stub connection type added

CONNECTION SPECIFICATIONS	
JOINT TYPE:	FERNCO CORRUGATED PIPE COUPLING
MAXIMUM TEST PRESSURE:	4.3 PSI (29.6KPA)
MAXIMUM OPERATING TEMPERATURE:	140° F NONCONSISTENT
CONFORMS TO:	ASTM #D5926, C1173 AND APPLICABLE PORTIONS OF ASTM #C443, C425, C564, CSA B602 AND D1869

ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES

NOTE: ALL STUB CONNECTIONS TO THE FIELD ROOF DRAINS OR OUTLET PIPES TO BE DONE & PROVIDED BY CONTRACTOR WITH A BOOTED COUPLER. CONNECTION TO BE PER PROJECT SPECIFICATIONS FOR JOINT TYPE & LEVEL OF TIGHTNESS PROVIDED BY COUPLERS. SEE CONNECTION SPECIFICATIONS TABLE TO LEFT.

information on stub connections added

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