CONSTRUCTION SPECIFICATION:

ALL CONSTRUCTION MATERIALS AND PROCEDURES SHALL BE GOVERENED BY THE "STANDARD SPECIFICATIONS FOR HIGHWAYS AND STRUCTURES" DATED 2013 ISSUED BY THE DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION. EXCEPT AS AMENDED OR SUPPLEMENTED BY SPECIAL PROVISIONS.

DESIGN SPECIFICATION:

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS XTH EDITION DATED 20XX AND ALL INTERIMS. ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5M//D1.5 20XX BRIDGE WELDING CODE, XTH EDITION AND SUBSEQUENT INTERIM REVISIONS.

ELEVATIONS AND COORDINATES:

COORDINATES SHOWN ON THESE PLANS ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM.
ALL ELEVATIONS ARE BASED ON THE DISTRICT OF COLUMBIA DATUM. FOR WHICH -2.11 FT IS MEAN LOWER WATER.

DIMENSIONS:

ALL STRUCTURE DIMENSIONS ARE BASED UPON A NORMAL TEMPERATURE OF 70 DEGREES, FAHRENHEIT UNLESS OTHERWISE NOTED. ALL PLAN DIMENSIONS ARE HORIZONTAL UNLESS OTHERWISE NOTED.

FOUNDATIONS:

FOOTINGS: FOOTING SHALL BEAR ON FIRM MATERIAL. FOOTINGS FOR ABUTMENTS AND WINGWALLS HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF X TONS/SQ. FT. THE GEOTECHNICAL ENGINEER SHALL INSPECT, VERIFY AND CERTIFY THAT ALL BRIDGE FOOTINGS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PROJECT PLANS.
PILING: MAXIMUM DESIGN LOADING PER PILE :
IN ABUTMENTS .... TONS;
IN BENTS .... TONS.

FOUNDATION REPORT:

ACCESS TO A FOUNDATION REPORT AND CORE BORINGS FOR THIS PROJECT CAN BE ARRANGED BY CONTACTING THE GEOTECHNICAL SECTION OF DDOT.

DESIGN METHOD:

DESIGN IS BASED ON THE LOAD AND RESISTANCE FACTOR DESIGN METHOD (LRFD).

DESIGN LOAD:

HL-93 WITH PROVISIONS FOR 25 PSF FOR FUTURE WEARING SURFACE ON THE DECK SLAB.

LOAD RATINGS:

1. THIS BRIDGE'S LOAD RATING FOLLOWS THE LRFD METHOD: THE INVENTORY AND OPERATING RATINGS ARE BASED ON HL93 AND AASHTO NRL LOADS. (THE ACTUAL RATINGS SHALL APPEAR ON THE PLAN COVER SHEET.)
2. IF THE BRIDGE IS LOCATED ON A TRUCK ROUTE, WHERE PERMITTED OR OVERLOADED TRUCKS ARE EXPECTED, IT HAS BEEN LOADED RATED FOR AASHTO LOADS HL93, TYPE 3S2, TYPE 3-3, NOTIONAL RATING LOAD (NRL), PERMIT TRUCK OF 90,000 LBS, AND PERMIT TRUCK OF 147,000 LBS. (USED FOR BRIDGES ON TRUCK ROUTES)
3. ADDITIONALLY, BECAUSE THIS BRIDGE HAS BEEN LOADED RATED FOR AASHTO LOADS HL93, TYPE 3S2, TYPE 3-3, NOTIONAL RATING LOAD (NRL). (USED FOR BRIDGES THAT ARE NOT ON TRUCK ROUTES)

STRUCTURAL STEEL:- MATERIAL AND DESIGN STRESSES

STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270 (ASTM A 709) GRADE 50 INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF M 270, FOR PRIMARY LOAD CARRYING MEMBERS MARKED "T". REFER TO SECTION 815.01 (J) AASHTO M164 (ASTM A325) FOR ALL NEW HIGH STRENGTH BOLTS AND NUTS. BOLTS FOR STRUCTURAL STEEL CONNECTIONS SHALL BE COATED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR PAINTING.

PAINT COLOR:

THE COLOR FOR THE FINISH COAT SHALL MATCH FEDERAL STANDARD 595B COLOR NO. xxxxx.

FRACTURE CRITICAL MEMBERS:

THIS STRUCTURE CONTAINS FRACTURE CRITICAL MEMBERS, SEE SHEET(S) xxxx FOR IDENTIFICATION OF THESE MEMBERS, SEE SPECIAL PROVISIONS FOR SPECIAL REQUIREMENTS FOR THESE MEMBERS.

REINFORCED CONCRETE:

BRIDGE DECKS, SIDEWALKS, APPROACH SLABS AND MEDIANS SHALL BE CLASS A. ALL OTHER CONCRETE SHALL BE CLASS B

MINIMUM CONCRETE COVER:

TOP OF DECK SLAB 2 1/2"
BOTTOM OF DECK SLAB 1 1/2" MIN.
REINFORCING STEEL MINIMUM COVER FOR SLABS AND FOOTINGS ON SOIL 3"
ALL OTHER LOCATIONS 2" (UNLESS OTHERWISE NOTED)
ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4" x 3/4", EXCEPT AS NOTED.
CONSTUCTION JOINTS SHALL BE MADE ONLY WHERE SHOWN IN THE PLANS. ADDITIONAL JOINTS SHALL BE MADE ONLY WITH THE APPROVAL OF THE ENGINEER.
ROUGHNED CONSTRUCTION JOINTS SHALL BE ROUGHENED OVER THE ENTIRE SURFACE TO A 1/4" MINIMUM AMPLITUDE.
STAY IN PLACE FORMS WILL NOT BE ALLOWED.

DRILLING HOLES IN CONCRETE:

THE COST OF DRILLING HOLES IN EXISTING CONCRETE AND GROUTING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE RESPECTIVE PCC ITEMS. WHERE DRILLING AND GROUTING IS DONE FOR THE ATTACHMENT OF RAILINGS OR OTHER DEVICES. THE COST SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEMS TO BE ATTACHED.

ANCHOR BOLTS HOLES:

TEMPLATES SHALL BE USED FOR DRILLING HOLES AND INSTALLING ANCHOR BOLTS. UNFILLED HOLES SHALL BE PROTECTED AGAINST RUPTURE IN FREEZING WEATHER. EPOXY MORTAR SHALL BE USED TO FILL HOLES AROUND ANCHOR BOLTS.

POURING CURBS, RAILS AND SIDEWALKS:

ALL SLAB CONCRETE SHALL BE PLACED PRIOR TO POURING ANY CURBS, RAILS OR SIDEWALKS ON ANY SIMPLE SPAN, OR ANY CONTINUOUS UNIT.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE AASHTO M31 (ASTM A615, GRADE 60). AND SHALL BE EPOXY COATED.
ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF AASHTO ARTICLE 5.10.2 UNLESS NOTED OTHERWISE. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT FOR BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.

ISSUED: 8/2015	
REVISION	APPROVAL

RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

BRIDGE GENERAL NOTES 1

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 700.00

FOR TIES AND STIRRUPS: STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS(-) NORMAL ACI BENDING TOLERANCES.
COLUMN SPIRALS SHALL BE COLD DRAWN STEEL WIRE CONFORMING TO GRADE 60 REINFORCING STEEL CONFORMING TO A615. COLUMN SPIRALS SHALL NOT BE WELDED.
COLUMN SPIRALS SHALL BE LAPPED 48 BAR OR WIRE DIAMETERS AT ALL SPLICES.
SPIRALS SHALL EXTEND FROM TOP OF FOOTING TO BOTTOM OF BOTTOM MAT OF REINGORCING STEEL IN CAP OF SUBSTRUCTURE MEMBER. ALL SPIRAL REINFORCING SHALL HAVE A MINIMUM 1 1/2 TURNS, FLAT, TOP AND BOTTOM (AT FOOTING AND IN CAP).
DEVELOPMENT LENGTH OF REINFORCING STEEL SHALL COMPLY WITH AASHTO SPECIFICATION 5.11.2.1 FOR TENSION AND 5.11.2.2 FOR COMPRESSION.
SPLICE LENGTH OF REINFORCING STEEL SHALL COMPLY WITH AASHTO SPECIFICATION 5.11.5.3

COUPLERS:

COUPLERS SHALL CONFORM TO ASTM A563 GRADE A MIN TENSILE STRENGTH OF 125% OF THE YIELD STRENGTH OF THE ELEMENTS BEING CONNECTED OR AS SPECIFIED ON THE STANDARD DRAWINGS.

PRESTRESSED CONCRETE DESIGN (WHEN APPLICABLE):

PRESTRESSED CONCRETE: LOAD AND RESISTANCE FACTOR DESIGN METHOD. f'c= 5000 PSI.
THE MINIMUM COMPRESSIVE AT TRANSFER OF PRESTRESS SHALL BE f'ci= 4250 PSI.
THE PRECAST PRESTRESSED CONCRETE GIRDERS ARE DESIGNED AS NONCOMPOSITE SIMPLE SPANS FOR ALL DEAD LOADS EXCEPT THE BARRIERS AND FUTURE WEARING SURFACE. THE PRECAST GIRDERS ARE DESIGNED AS COMPOSITE CONTINUOUS SPANS FOR LIVE LOADS AS WELL AS THE BARRIERS AND FUTURE WEARING SURFACE DEAD LOADS.
THE AGE OF THE PRECAST CONCRETE GIRDERS SHALL BE AT LEAST NINETY (90) DAYS WHEN THE CONTINUITY CONNECTION BETWEEN THE GIRDER AND PIER DIAPHRAGM IS ESTABLISHED.
ALL CONCRETE SHALL BE CLASS D. REFER TO SECTION 817.03.

PRESTRESSING STEEL (WHEN APPLICABLE):

PRESTRESSING STEEL SHALL CONSIST OF 1/2" DIAMETER 7-WIRE LOW RELAXATION STRANDS CONFORMING TO THE REQUIREMENTS OF M 203 GRADE 270. EACH 1/2" STRAND SHALL BE PRETENSIONED TO 31000 LB. (0.75 fpu), HAVE AN ULTIMATE STRENGTH OF 41300 LB. AND A YIELD STRENGTH OF 37200 LB.
CAMBER GROWTH IN PRETENSIONED GIRDERS BETWEEN THE TIME OF STRESSING AND THE TIME OF SLAB PLACEMENT IS ASSUMED TO BE 80% FOR CAMBER CALCULATIONS.

RESTRICTION FOR PLACING AND USING EQUIPMENT ON EXISTING OR NEW STRUCTURE/OR STORING MATERIALS ON/OR AGAINST STRUCTURES:

THERE ARE RESTRICTIONS ON PLACING EQUIPMENT ON EXISTING AND NEW STRUCTURE(S) AND STORING MATERIALS ON/OR AGAINST EXISTING AND NEW STRUCTURE(S) ELEMENTS. THE LIMITATIONS BASICALLY RELATE TO LOADS THAT ARE BEYOND DDOT'S LEGAL VEHICLES AND/OR POSTED LOAD LIMITS (WHERE APPLICABLE) AND MATERIALS STOCKPILED ON/OR AGAINST STRUCTURES OR STRUCTURES' ELEMENTS. FOR DETAILS OF SUCH RESTRICTIONS SEE SPECIAL PROVISION TITLED "RESTRICTIONS FOR PLACING AND USING EQUIPMENT ON STRUCTURES, OR STORING MATERIALS ON/OR AGAINST STRUCTURES" IN THE CONTRACT DOCUMENTS. IN ORDER TO COMPLY WITH THIS ARTICLE. THE CONTRACTOR SHALL READ THE SPECIAL PROVISION PRIOR TO COMMENCING ANY WORKD ON STRUCTURE(S) IN THIS CONTRACT.

MAINTENANCE OF TRAFFIC:

DURING ALL PHASES OF PROJECT OPERATIONS AND FOR THE DURATION OF THE CONTRACT, VEHICULAR AND PEDESTRIAN TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE CONTRACT DRAWINGS AND SPECIFICATIONS. IF THE CONTRACTOR DEVELOPS AN ALTERNATIVE MAINTENANCE OF TRAFFIC PLAN, IT SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER PRIOR TO BEGINNING OF CONSTRUCTION.

UTILITIES:

THE FOLLOWING UTILITIES ARE KNOWN TO HAVE FACILITIES IN THE CONTRACT AREA:
1. POTOMAC ELECTRIC AND POWER COMPANY.
2. WATER AND SEWER UTILITY ADMINISTRATION OF THE DISTRICT OF COLUMBIA.
3. VERIZON COMMUNICATION.
4. WASHINGTON GAS COMPANY.

THE EXISTENCE OF OTHER UTILITIES IS UNKNOWN. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL EXISITING UTILITIES AND PROVIDE TEMPORARY SUPPORT AS REQUIRED DURING CONSTRUCTION. FOR FULL INFORMATION REGARDING UTILITIES PROTECTION. SEE THE SPECIAL PROVISION "UTILITIES PROTECTIVE ALERT."
NOTIFY MISS UTILITY @1-800-257-7777 SEVENTY-TWO HOURS PRIOR TO CONSTRUCTION.
THE LOCATIONS OF THE UTILITIES SHOWN ON THE PLANS ARE BASED ON FIELD SURVEY DATE AND/OR RECORD DRAWINGS OF THE ORIGINAL LOCATIONS. THE INFORMATION SHOWN IS NOT NECESSARILY COMPLETE AND THE LOCATION OF THE UTILITIES SHOWN IS APPROXIMATE.
IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTENCE OF ALL THE UTILITIES WELL IN ADVANCE OF CONDUCTING CONSTRUCTION OPERATIONS WHICH COULD DAMAGE THESE FACILITIES. IN THE AREA WHERE PROPOSED CONSTRUCTION MAY CONFLICT WITH EXISTING UTILITIES, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISITING UTILITIES/ IF A UTILITY IS DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND THE OWNER OF SAID UTILITY.
ANY DAMAGE SUSTAINED TO THE UTILITIES ABOVE OR BELOW GROUND SHALL BE REPAIRED BY OR UNDER THE DIRECTION OF THE UTILITY OWNER AT THE CONTRACTOR'S EXPENSE.
UNDER NO CIRCUMSTANCE SHALL THE CONTRACTOR BACKFILL AN EXCAVATION AFFECTING SAID UTILITY WITHOUT FIRST RECEIVING PERMISSION FROM THE UTILITY OWNER.
THE CONTRACTOR SHALL NOT BE ALLOWED TO TAP INTO EXISTING UTILITIES ON THE BRIDGE.
THE CONTRACTOR SHALL BE REPONSIBLE FOR PROVIDING HIS OWN POWER SOURCE.
THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING ALL UTILITY COVER REQUIRED TO MEET NEW ROADWAY AND MEDIAN GRADE.

SECTIONS:

TYPICAL EXAMPLES:

(4/39) DETAIL "4" TAKEN ON SHEET NO. 3 AND SHOWN ON SHEET NO. 9

(A/9) SECTIONS "A" TAKEN AND SHOWN ON SHEET NO. 9.

(A/2|5) SECTION "A" ON SHEET NO. 2 AND SHOWN ON SHEET NO. 5.

NOTE TO CONTRACTOR:

THE CONTRACTOR IS RESPONSIBLE FOR THE ENTIRE ERECTION OF THE BRIDGE.
THE CONTRACTOR SHALL SUBMIT DRAWINGS SEALED BY AN ENGINEER REGISTRED IN THE DISTRICT OF COLUMBIA EXPERIENCED IN BRIDGE DESIGN, ILLUSTRATING FULLY THE PROPOSED METHOD OF ERECTION. THE DRAWINGS SHALL SHOW DETAILS OF ALL FALSEWORK BENTS, BRACING, GUYS, DEAD-MEN, LIFTING DEVICES AND ATTACHMENTS TO THE BRIDGE MEMBERS, SEQUENCE OF ERECTION, LOCATION OF CRANES, CRANE CAPACITIES, LOCATION OF LIFTING POINTS ON THE BRIDGE MEMBERS AND WEIGHT OF MEMBERS. THE PLAN AND DRAWINGS SHALL BE COMPLETE IN DETAIL FOR ALL ANTICIPATED PHASES AND CONDITIONS DURING ERECTION. CALCULATIONS, SEALED BY AN ENGINEER REGISTERED IN THE DISTRICT OF COLUMBIA EXPERIENCED IN BRIDGE DESIGN, ARE REQUIRED TO DEMONSTRATE THAT ALLOWABLE STRESSES ARE NOT EXCEEDED AND THAT MEMBER CAPACITIES AND FINAL GEOMETRY WILL BE CORRECT. NO ERECTION SHALL BE PERFORMED UNTIL THE PROPOSED ERECTION DRAWINGS HAVE BEEN REVIEWED BY THE ENGINEER AND HAVE WRITTEN APPROVAL BY THE ADMINISTRATION.

ISSUED: 8/2015	
REVISION	APPROVAL

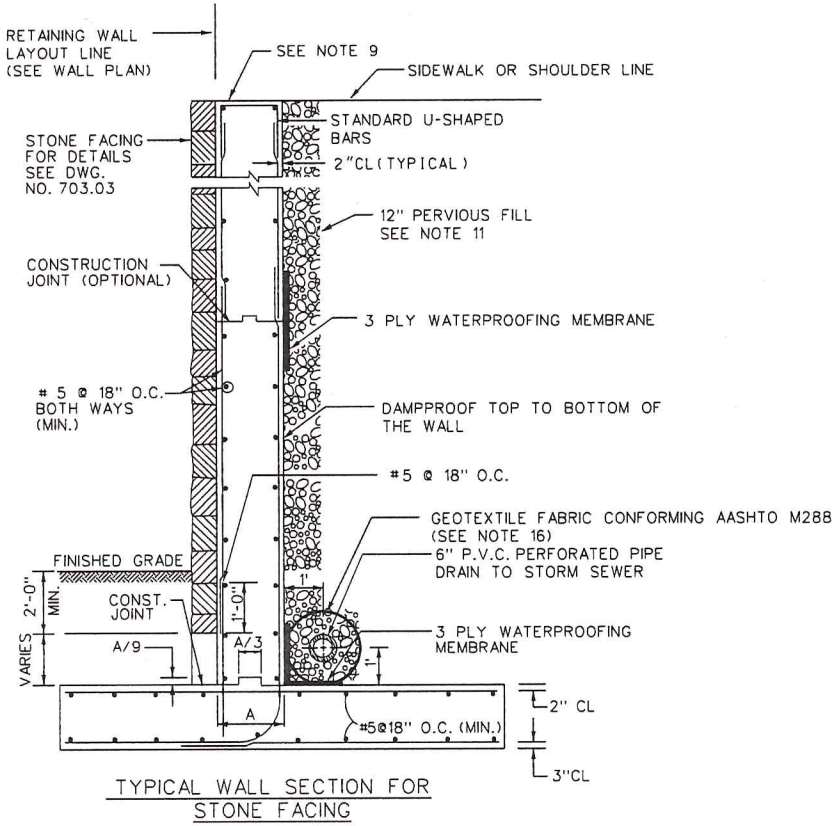
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Kholid CHIEF ENGINEER

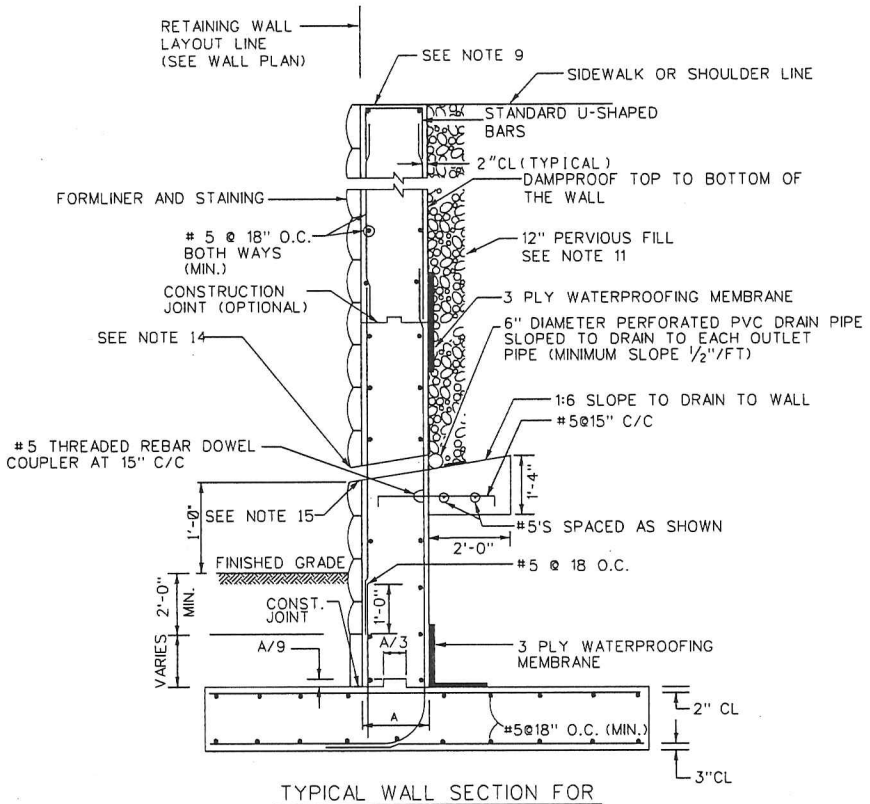
BRIDGE GENERAL NOTES 2

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 700.01



TYPICAL WALL SECTION FOR STONE FACING



TYPICAL WALL SECTION FOR FORMLINER FACING

NOTES :

1. THE ENGINEER SHALL PROVIDE A DESIGN THAT MEETS REQUIREMENTS OF THE LATEST AASHTO LRFD CODE AND DDOT DESIGN AND ENGINEERING MANUAL, NOTING CONCRETE SECTIONS AND REINFORCEMENT ACCORDINGLY.
2. THESE DETAILS ARE THE EXAMPLES OF TYPICAL WALL SECTIONS. USE OF FORMLINER OR STONE AND STORM SEWER CONNECTION OR WEEP HOLES WILL BE DETERMINED BASED ON THE PROJECT.
3. ALL FOUNDATIONS SHALL BEAR A MINIMUM OF 2'-6" BELOW GRADE. IN CASE OF CONFLICT, NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF ANY CONSTRUCTION TO ALLOW FOR ADJUSTMENT.
4. WALL FOOTINGS SHALL BE LEVEL BETWEEN STEPS. (SEE WALL ELEVATION FOR STEP LOCATIONS).
5. REFER DWG. NO. 202.01 FOR THE LIMITS OF EXCAVATION.
6. WALLS AND FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE INFORMATION SHOWN ON THE GEOTECHINAL REPORT PROVIDED BY THE (COMPANY). FOR THIS PROJECT, DATED (DATE).
7. CONCRETE FOR FOUNDATIONS SHALL BE POURED ON THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE GEOTECHNICAL ENGINEER.
8. FOOTING SHALL BEAR ON FIRM MATERIAL. FOOTINGS FOR RETAINING WALL HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF X TONS/SQ.FT. THE GEOTECHNICAL ENGINEER SHALL INSPECT, VERIFY AND CERTIFY THAT ALL RETAINING WALL FOOTINGS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PROJECT PLANS.
9. THE ENGINEER SHALL PROVIDE TOP OF WALL DETAIL AND DESIGN TO INCLUDE COPING, PARAPET, RAILING, ETC. AS REQUIRED.
10. DAMPPROOFING SHALL BE DONE PER DDOT STANDARD SPECIFICATIONS. SECTION 822.10
11. FOR PERVIOUS FILL USE CRUSHED GRAVEL CONFORMING TO AASHTO M6 GRADING REQUIREMENTS OR GEOCOMPOSITE WALL DRAINS MAY BE USED AS AN ALTERNATIVE TO PERVIOUS BACKFILL WHEN PERMITTED BY THE ENGINEER. FOR SPECIFICATIONS ABOUT THE GEOCOMPOSITE WALLDRAINS SEE SPECIAL PROVISION.
12. 6" PERFORATED DRAIN SHALL DRAIN TO STORM SEWER IN URBAN LOCATIONS.
13. 6" PERFORATED DRAIN SHALL DRAIN THROUGH WEEP HOLES IN LOCATIONS WHERE WALL FACE IS NOT VISIBLE TO VEHICULAR PEDESTRAIN TRAFFIC.
14. IF FRONT FACE OF WALL IS VISIBLE TO VEHICULAR OR PEDESTRAIN TRAFFIC, DRAIN PIPE SHALL EXTEND 3" FROM FACE OF WALL; FOR ALL OTHER CONDITIONS MAKE FLUSH.
15. 6" DIAMETER NON-PERFORATED PVC CIRCULAR PIPE UNDERDRAIN OUTLET WITH T-CONNECTION TO 6" DIAMETER PIPE UNDERDRAIN (15' MAXIMUM SPACING, 1" FALL).
16. USE No. 57 or No. 67 WASHED CRUSHED STONES TO WRAP AROUND PERFORATED PIPE FOR 1' WIDTH WITH GEOTEXTILE FABRIC.

ISSUED: 8/2015	
REVISION	APPROVAL

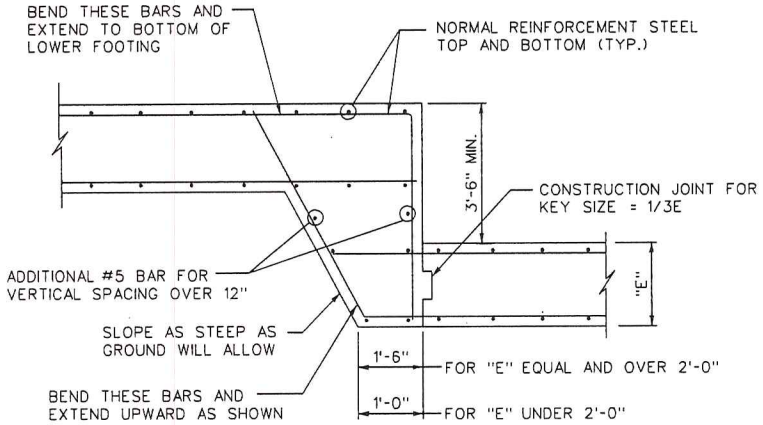
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

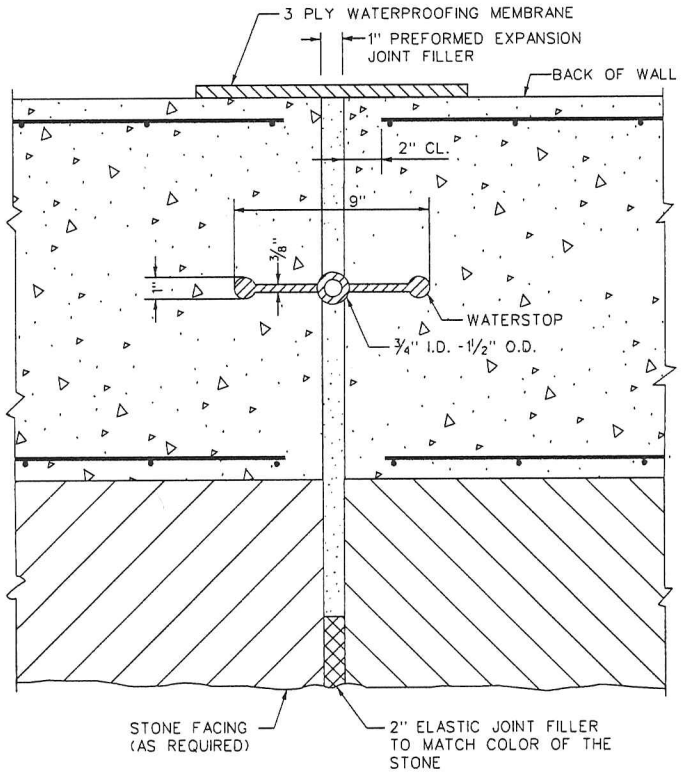
REINFORCED CONCRETE RETAINING WALL ON SPREAD FOOTINGS

d. DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION

DWG. NO. 703.01



TYPICAL SECTION OF STEP IN WALL FOOTING



TYPICAL EXPANSION JOINT DETAIL

NOTES :
1. EXPANSION JOINTS SHALL BE PROVIDED AT INTERVALS NOT EXCEEDING 90'.

ISSUED: 8/2015	
REVISION	APPROVAL

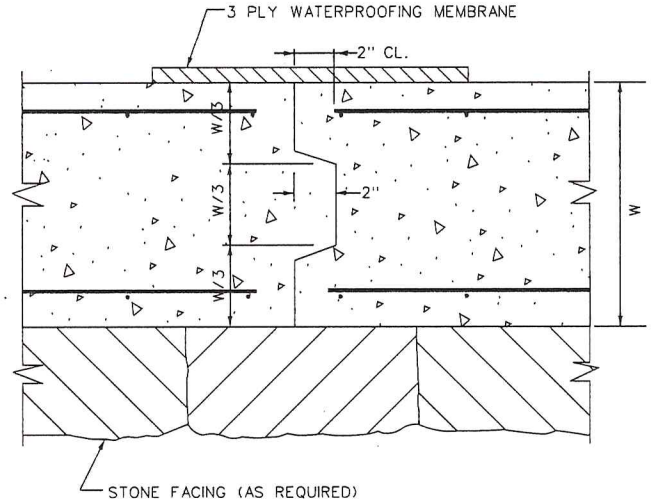
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

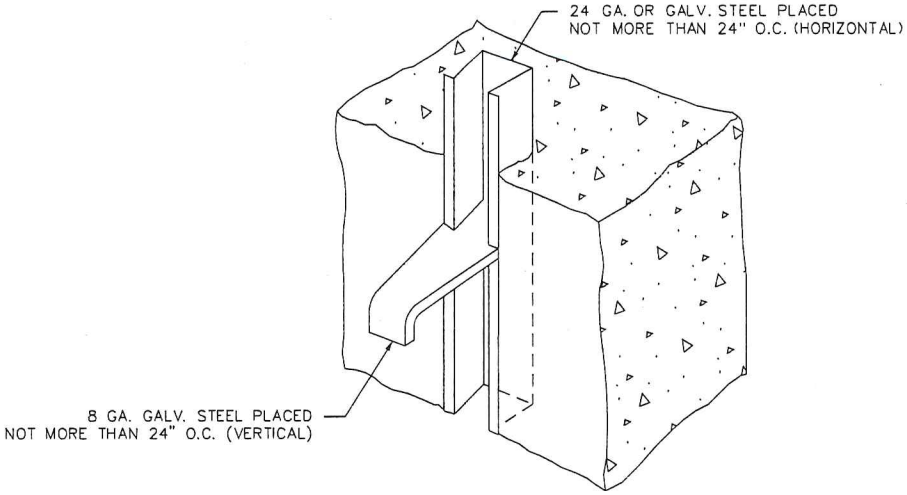
REINFORCED CONCRETE RETAINING WALL DETAILS 1

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 703.02



TYPICAL VERTICAL
CONTRACTION JOINT DETAIL

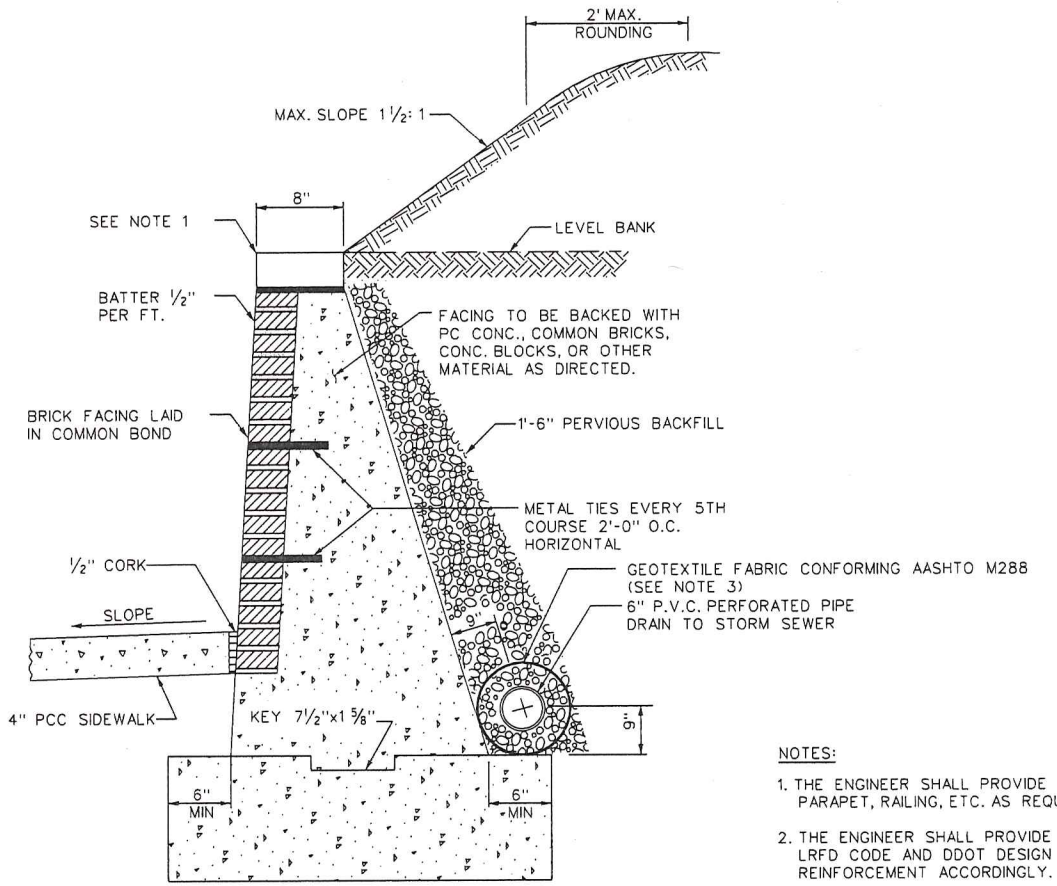


TYPICAL DOVETAIL ANCHOR
FOR STONEWORK

NOTES :

1. WALLS SHALL HAVE CONTRACTION JOINTS AT A MAXIMUM OF 30'.
2. STOP KEY 9" BELOW TOP OF WALL.
3. REINFORCING STEEL SHALL NOT PASS THROUGH CONTRACTION JOINT.
4. ALL KEYS ARE NOMINAL SIZE.
5. CONTRACTION JOINTS SHALL BE PLACED ONLY IN STEMS.
6. LAST VERTICAL BAR SHALL BE PLACED AT THE END OF THE LONGITUDINAL BAR FOR SEGMENT WITH RECESSED KEY.

ISSUED: 8/2015	RECOMMENDED: PROJECT MANAGER	REINFORCED CONCRETE RETAINING WALL DETAILS 2	d. DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION
REVISION / APPROVAL	APPROVED: Muhammed Khalid CHIEF ENGINEER		DWG. NO. 703.03



BRICK MASONRY GRAVITY RETAINING WALL

NOTES:

1. THE ENGINEER SHALL PROVIDE TOP OF WALL DETAIL AND DESIGN TO INCLUDE COPING, PARAPET, RAILING, ETC. AS REQUIRED.
2. THE ENGINEER SHALL PROVIDE A DESIGN THAT MEETS REQUIREMENTS OF THE LATEST AASHTO LRFD CODE AND DDOT DESIGN AND ENGINEERING MANUAL, NOTING CONCRETE SECTIONS AND REINFORCEMENT ACCORDINGLY.
3. USE No. 57 or No. 67 WASHED CRUSHED STONES TO WRAP AROUND PERFORATED PIPE FOR 1' WIDTH WITH GEOTEXTILE FABRIC.
4. SPACING OF EXPANSION JOINTS 90' MAX. AND CONSTRUCTION JOINTS 30' MAX.

ISSUED: 8/2015	
REVISION	APPROVAL

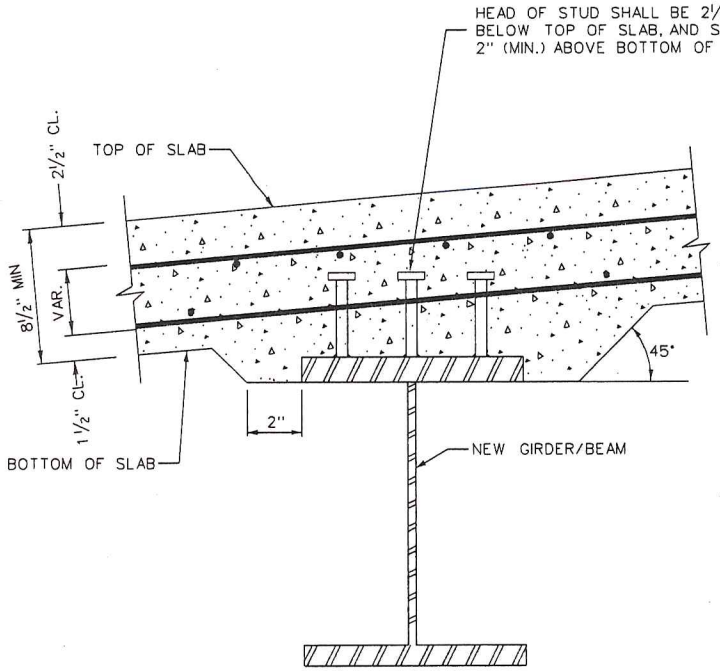
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

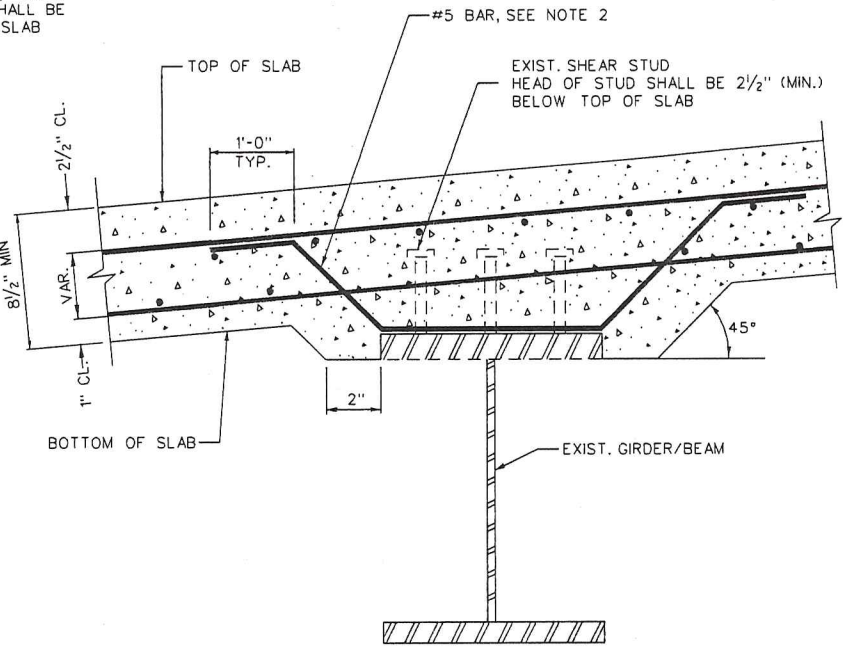
BRICK MASONRY GRAVITY RETAINING WALL

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 703.04



SLAB ON NEW GIRDER/BEAM



SLAB ON EXISTING GIRDER/BEAM

NOTES:

1. ALL REINFORCING BARS SHALL BE EPOXY COATED.
2. IF THE HEAD OF EXISTING SHEAR STUD IS LESS THAN 2" ABOVE BOTTOM OF SLAB, A #5 BAR SHALL BE PLACED ADJACENT TO THE STUD. DECK SLAB THICKNESS SHALL NOT BE LESS THAN 8 ½".
3. IF THE HAUNCH HEIGHT IS GREATER THAN 3 ½" FOLLOW THE DDOT DESIGN AND ENGINEERING MANUAL FOR ADDITIONAL REINFORCEMENT.
4. FOR SHEAR CONNECTOR DETAIL, REFERENCE DWG NO. 706.08.

ISSUED: 8/2015	
REVISION	APPROVAL

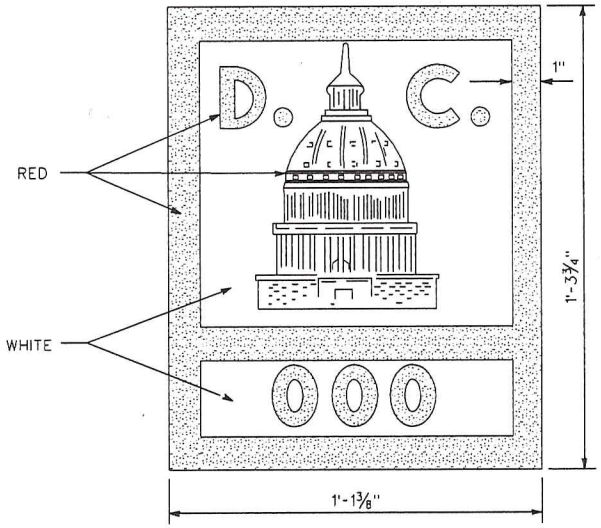
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

BRIDGE DECK SLAB DETAIL

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 703.05



FOR NUMBER, (FILE NUMBER) SEE CONTRACT DOCUMENTS.

MOSAIC EMBLEM

NOTE:

1. EACH BRIDGE SHALL HAVE A MOSAIC EMBLEM ON THE SUBSTRUCTURE CLEARLY VISIBLE FROM PUBLIC VIEW AS SHOWN ON PLANS.
2. MOSAIC EMBLEMS SHALL BE A WEATHER-RESISTANT CERAMIC MATERIAL SET INTO THE ABUTMENT FACE.

ISSUED: 8/2015	
REVISION	APPROVAL

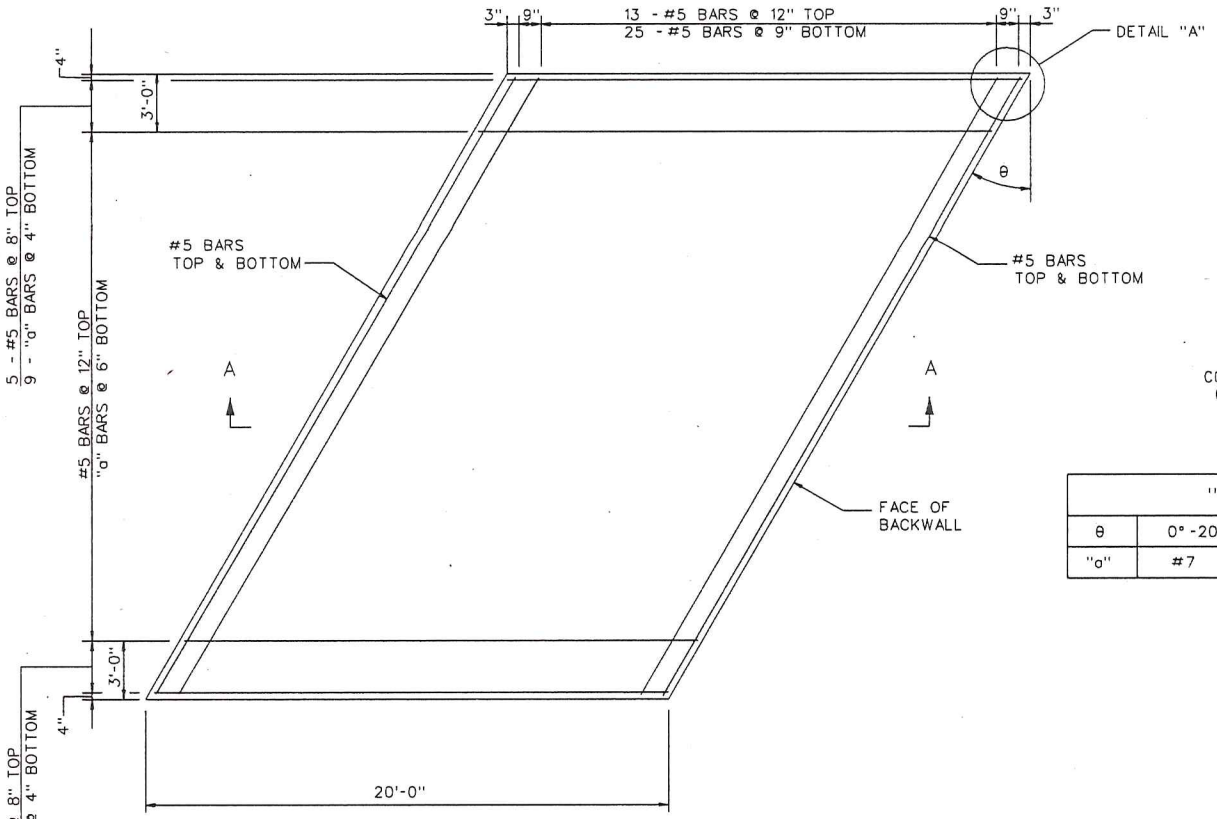
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

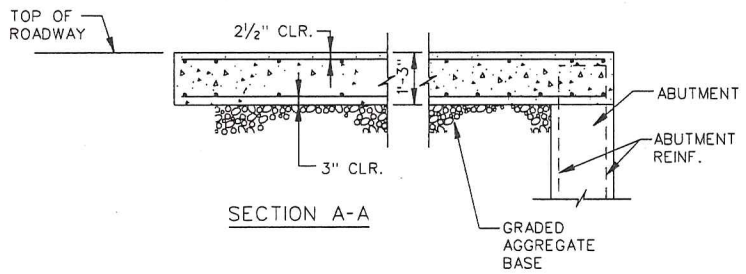
MOSAIC EMBLEM

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

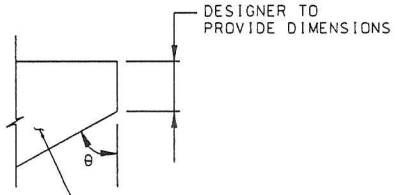
DWG. NO. 703.06



PLAN



SECTION A-A



DETAIL "A"

CORNER DETAIL FOR θ > 20°
(OTHER CORNERS SIMILAR)

"a" BAR REINFORCEMENT			
θ	0°-20°	OVER 20°-45°	OVER 45°-50°
"a"	#7	#8	#9

NOTE:

IF SLEEPER SLAB OR GRADE BEAM IS CONSIDERED, DESIGN SHALL BE DEVELOPED BY ENGINEER RECORD FOR APPROVAL BY DDOT.

ISSUED: 8/2015	
REVISION	APPROVAL

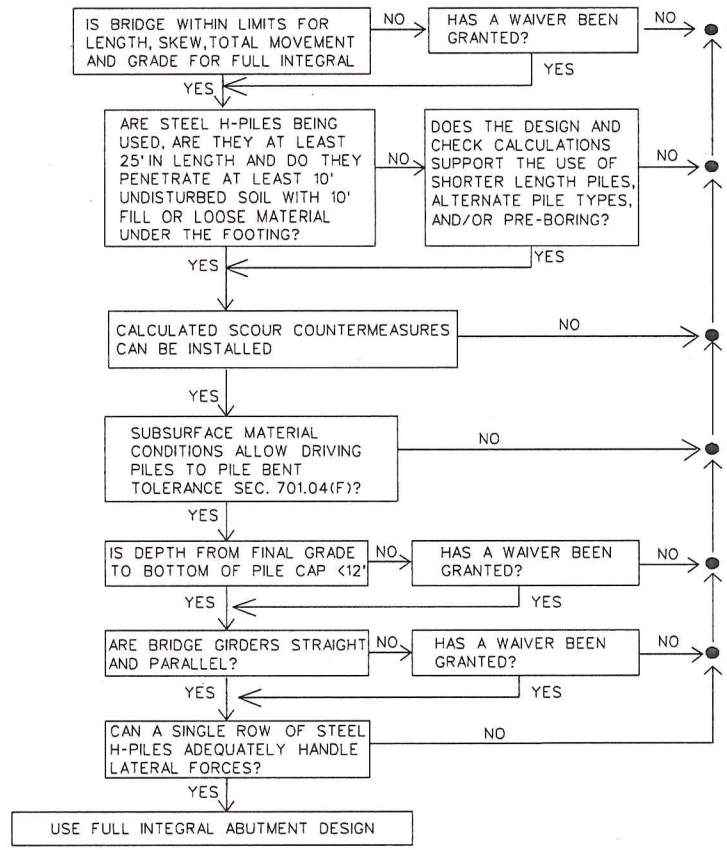
RECOMMENDED: _____ PROJECT MANAGER

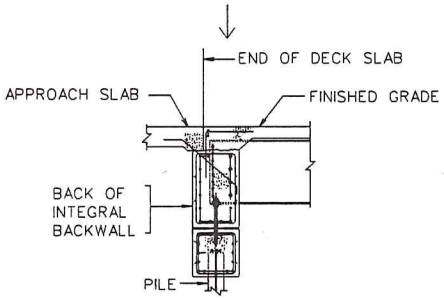
APPROVED: Muhammed Khalid CHIEF ENGINEER

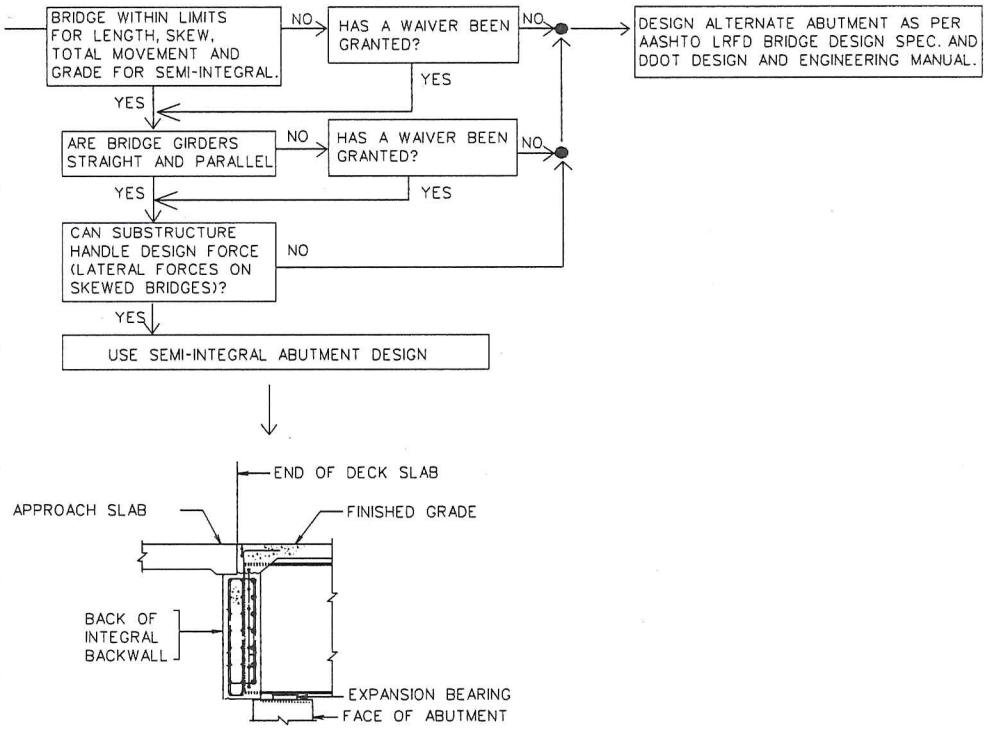
APPROACH SLAB

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 703.07







THE TOTAL BRIDGE LENGTH CONTINOUS (WITHOUT JOINTS) FROM ABUTMENT TO ABUTMENT AND TOTAL MOVEMENT AT ABUTMENT SHALL NOT EXCEED THE FOLLOWING:

	FULL INTEGRAL	SEMI-INTEGRAL
STEEL BRIDGES	300 FEET FOR 0° SKEW 150 FEET FOR 30° SKEW MAX. MAX. GRADE 4%	450 FEET 30° MAX. SKEW MAX. GRADE 4%
TOTAL MOVEMENT AT ABUTMENT "INCHES"	$1\frac{1}{2}$	$2\frac{1}{4}$

ISSUED: 8/2015	
REVISION	APPROVAL

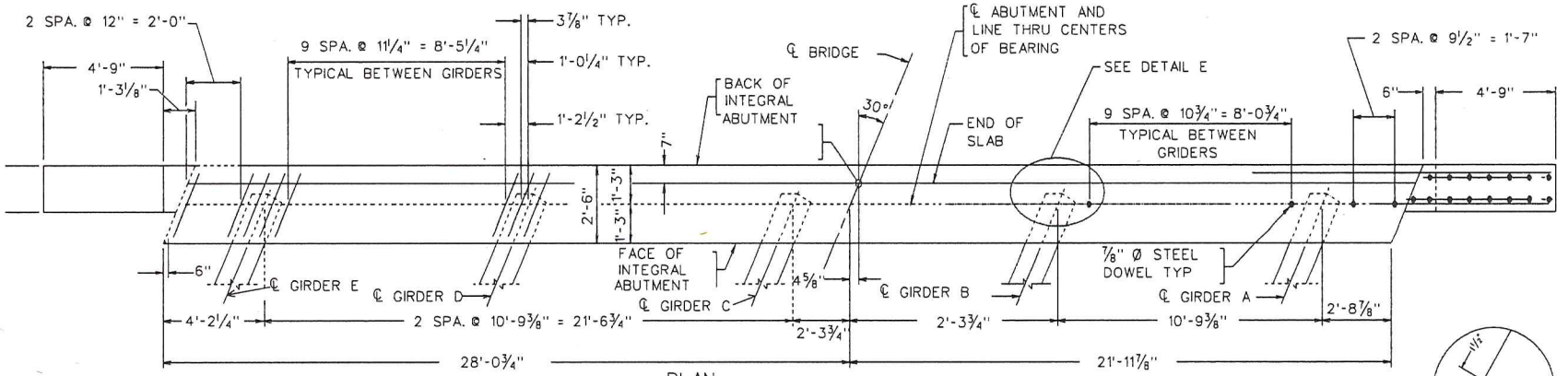
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

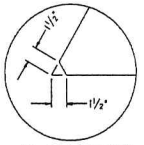
ABUTMENTS SELECTION CRITERIA

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 703.08

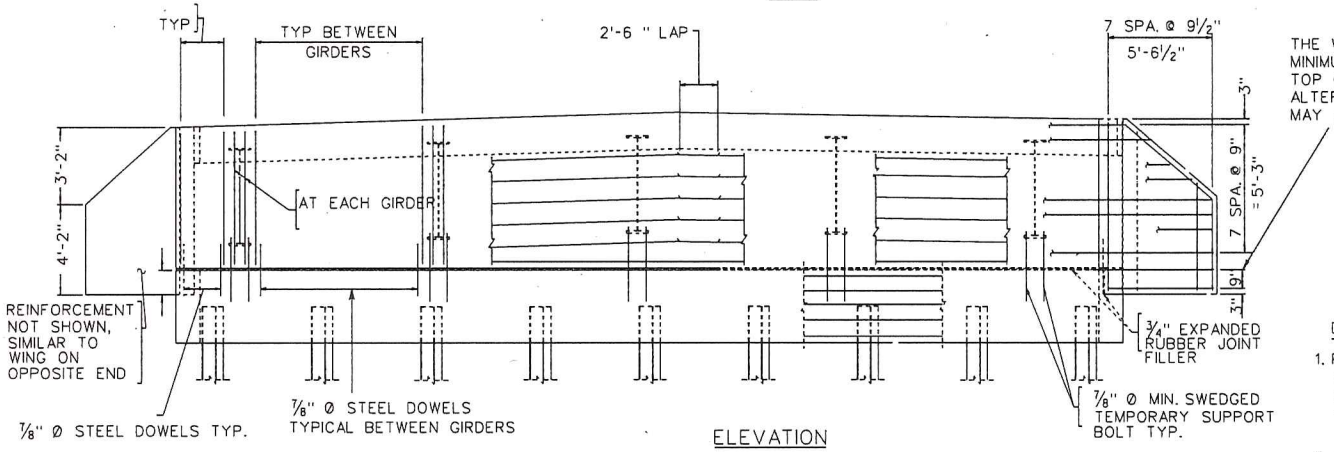


PLAN



ELEVATION

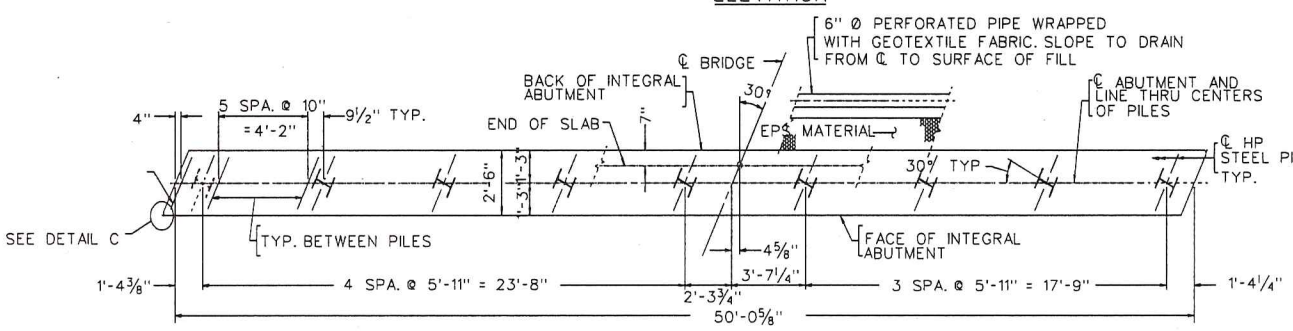
TYPICAL AT ACUTE ANGLES



ELEVATION

THE WING SHALL PROJECT A MINIMUM OF 12" BELOW THE TOP OF THE FOOTING. ALTERNATE WINGWALL DETAILS MAY BE ACCEPTABLE.

TABLE OF BOTTOM OF GIRDER ELEVATIONS				
GIRDER A	GIRDER B	GIRDER C	GIRDER D	GIRDER E



PLAN AND FOOTING REINFORCEMENT PLAN
(BARS ARE NOT SHOWN FOR CLARITY)

DESIGN NOTES:

1. PORTION OF THE INTEGRAL ABUTMENT ABOVE THE HINGE SHALL BE PLACED AND CURED TO A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI PRIOR TO THE PLACEMENT OF THE DECK CONCRETE.
2. BACKFILL BEHIND INTEGRAL ABUTMENT FOOTING SHALL NOT BE PLACED UNTIL CONCRETE IN THE UPPER PORTION OF THE INTEGRAL ABUTMENT ATTAINS A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI. THE REMAINDER OF THE BACKFILL BEHIND BOTH BRIDGE ABUTMENTS SHALL BE PLACED SUCH THAT THE DIFFERENTIAL IN THE HEIGHT OF FILL AT EACH ABUTMENT SHALL NOT EXCEED 6"
3. THE PORTION OF ABUTMENT ABOVE THE HINGE SHALL BE CAST WHEN THE LEAST THERMAL MOVEMENT OF THE SUPERSTRUCTURE CAN BE EXPECTED DURING THE PERIOD OF INITIAL SET OF CONCRETE, E.G. AT DUSK DURING AN EXPECTED UNIFORMLY CLOUDY DAY
4. ALL CHAMFERS SHALL BE ¾"
5. FOR ADDITIONAL INFORMATION, SEE DESIGN NOTES ON DRWAING NO. 703.10.

ISSUED: 8/2015	
REVISION	APPROVAL

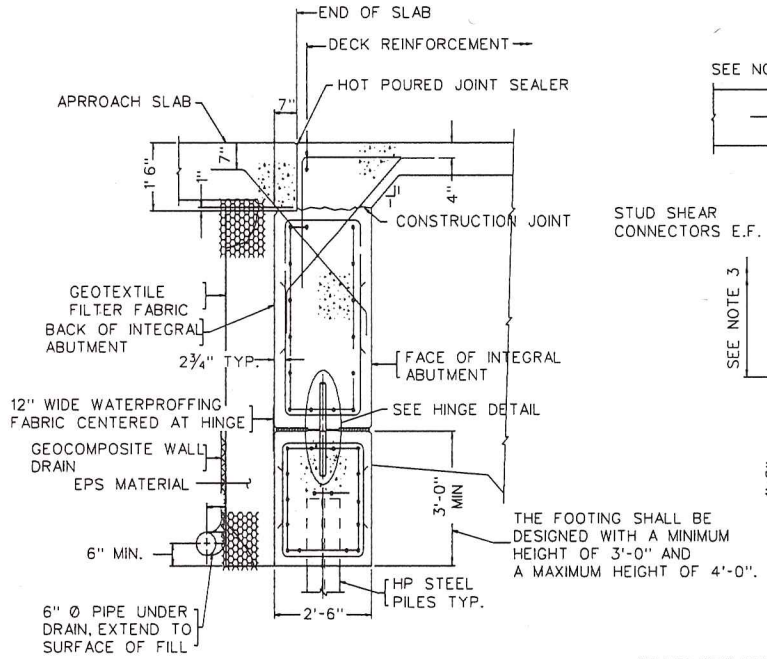
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Mvhammed Kholid CHIEF ENGINEER

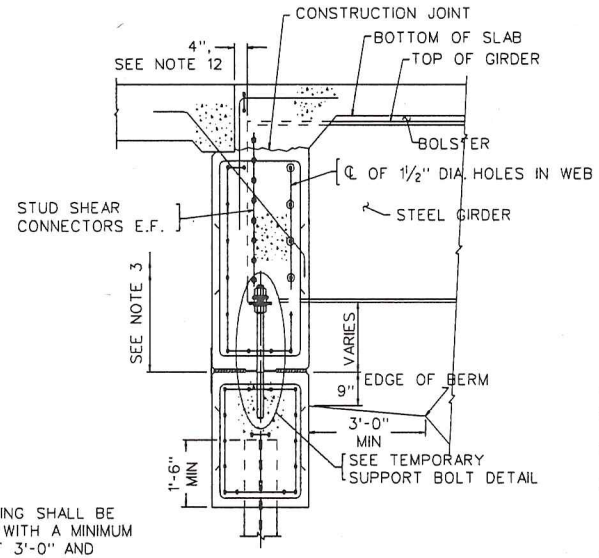
FULL INTEGRAL ABUTMENT PLAN AND ELEVATION (SAMPLE PLAN)

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

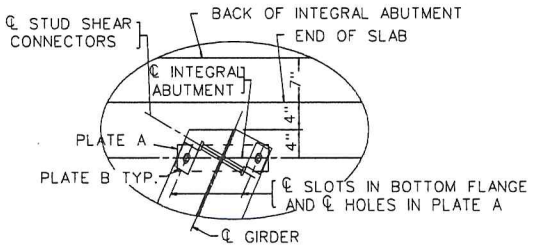
DWG. NO. 703.09



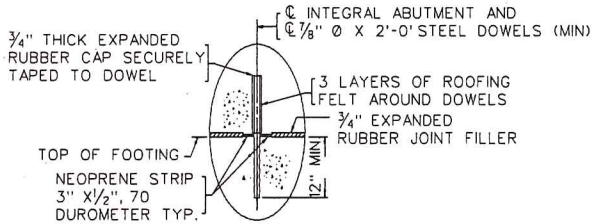
BETWEEN GIRDERS



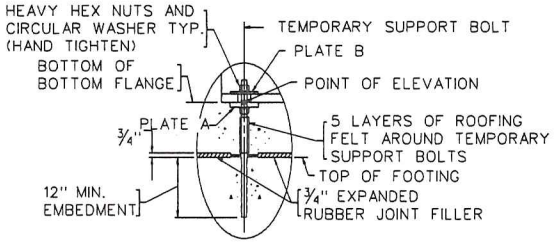
AT GIRDERS



DETAIL E



HINGE DETAIL



TEMPORARY SUPPORT BOLT DETAIL

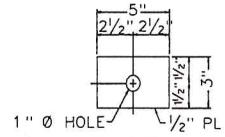


PLATE B

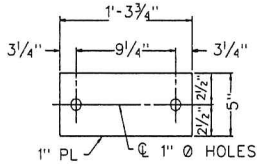


PLATE A

DESIGN NOTES:

1. ALL CHAMFERS SHALL BE ¾".
2. USE EPOXY COATED REINFORCING STEEL.
3. EXTREME CARE MUST BE TAKEN WHEN PLACING CONCRETE, TO ELIMINATE ANY VOIDS UNDER GIRDER FLANGES.
4. COST OF DOWELS, TEMPORARY SUPPORT BOLTS, PLATES, WASHERS, AND TEMPORARY SUPPORTS SHALL BE INCLUDED IN THE BID PRICE FOR STRUCTURAL STEEL.
5. ELASTICIZED EXPANDED POLYSTYRENE (EPS) MATERIAL MINIMUM THICKNESS IS 10". DESIGNER TO PROVIDE THICKNESS AS PER REQUIREMENT.
6. USE BACKFILL MATERIAL FOR PROPER DRAINAGE AS PER DDOT STANDARD.
7. A SERIES OF 1 1/2" DIA. HOLES SHALL BE PROVIDED FOR THE HORIZONTAL ABUTMENT BARS TO PASS THROUGH THE GIRDER/BEAM WEB. THESE HOLES SHALL BE SPACED AT A MAXIMUM SPACING OF 12" AND MINIMUM OF 2 HOLES.
8. BARS IN ABUTMENT AND BARS EXTENDING INTO APPROACH SLAB/DECK SHALL BE ALIGNED PARALLEL TO THE BEAM/GIRDER CENRTELINE. THE MAXIMUM SPACING OF THESE BARS SHALL BE 12".
9. DOWELS SHALL BE A MINIMUM OF ⅞" DIA. AND SHALL BE SPACED AT A MAXIMUM OF 12" CENTER-TO-CENTER ALONG THE CENTERLINE OF INTEGRAL ABUTMENT. LOCATE FIRST DOWEL 6" BEYOND THE EDGE OF BOTTOM FLANGE AND DIMENSION FROM THE CENTERLINE OF BEAM/GIRDER. DOWELS SHALL BE EMBEDDED 12" INTO FOOTING.
10. MINIMUM WIDTH OF INTEGRAL ABUTMENT SHALL BE 2'-6", AND APPROACH SLAB SEAT(7") SHALL BE PROVIDED ON ALL INTEGRAL ABUTMENTS.
11. DETAILING TYPE AND MINIMUM REQUIREMENTS ARE SHOWN ON THE SAMPLE PLAN.
12. 4" CLEARANCE BETWEEN THE END OF THE BEAM/GIRDER AND THE END OF SLAB SHALL BE PROVIDED. THE FLANGES MAY BE CLIPPED TO PROVIDE THIS CLEARANCE.

ISSUED: 8/2015	
REVISION	APPROVAL

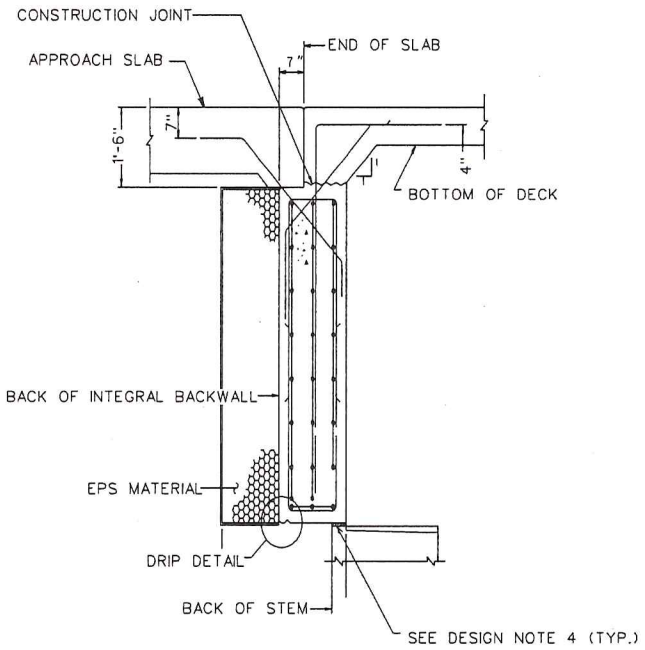
RECOMMENDED: _____ PROJECT MANAGER

APPROVED: Muhammed Khalid CHIEF ENGINEER

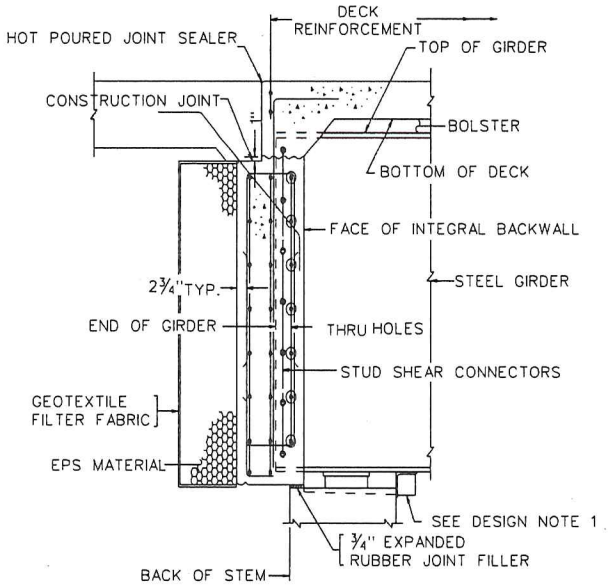
FULL INTEGRAL ABUTMENT (SAMPLE DETAIL)

d. DISTRICT OF COLUMBIA DEPARTMENT OF TRANSPORTATION

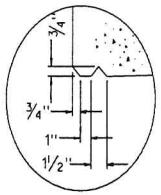
DWG. NO. 703.10



BETWEEN GIRDERS



AT GIRDERS



DRIP DETAIL

DESIGN NOTES:

1. IN THE CASE OF A SINGLE SPAN SEMI-INTEGRAL BRIDGE, USE THE TEMPORARY BLOCKING SHOWN. OTHERWISE, DELETE IT. THE BLOCKING DEVICES ARE REQUIRED AT THE LOWER END OF EACH GIRDER AND SHALL PREVENT THE SUPERSTRUCTURE FROM SLIDING. THEY SHALL BE REMOVED AFTER CONSTRUCTION IS COMPLETE.

2. THE MINIMUM WIDTH OF INTEGRAL BACKWALL SHALL BE 1'-7" FOR STEEL GIRDERS AND 1'-10" FOR CONCRETE STRINGERS. CLIPPING FLANGES IS PREFERABLE TO INCREASES IN THICKNESS WHERE REQUIRED DUE TO SKEW.

3. THE APPROACH SLAB SEAT(7") SHALL BE PROVIDED ON ALL INTEGRAL ABUTMENTS REGARDLESS OF WHETHER OR NOT THE BRIDGE WILL HAVE AN APPROACH SLAB.

4. DISTANCE BETWEEN FACE OF INTEGRAL BACKWALL AND BACK OF STEM SHALL BE A MINIMUM OF 4"

ISSUED: 8/2015	
REVISION	APPROVAL

RECOMMENDED: Adil Rizvi
PROJECT MANAGER

APPROVED: Muhammed Khalid
CHIEF ENGINEER

SEMI-INTEGRAL ABUTMENT (SAMPLE DETAIL)

d. DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

DWG. NO. 703.11