

August 8, 2016

US Environmental Protection Agency

Product Availability Waiver Request –American Iron and Steel Provisions

California Clean Water Revolving Loan Fund

Martin Taylor at the SWB martin.taylor@waterboards.ca.gov

Elisabeth Brown at the SWB Elisabeth.brown@waterboards.ca.gov

RE: Sacramento Regional County Sanitation District – Sacramento Regional Wastewater Treatment Plant – Echo Water Biological Nutrient Removal (BNR) Project

SRF project # “C-06-8025-160 EchoWater BNR project”

Expansion Joint Shear Dowels

Good Day:

The Sacramento Regional County Sanitation District is seeking a waiver to the AIS requirements for expansion joint shear dowels on the EchoWater Project - Biological Nutrient Removal (BNR) Project located in Elk Grove, California. This project includes the construction a battery of eight BNR basins consisting of concrete reinforced floors, walls, and elevated slabs, as shown in Attachment A. the BNR structure is a very large water containing structure designed per the Building Code and American Concrete Institute (ACI) standards ACI 350 for water containing structures.

Due to the size of the structure (over 1,200 ft by 600 ft) and because of groundwater uplift forces the magnitude of shear transfer through the expansion joints is very large. To accommodate these large forces, the designers used a shear dowel system with published shear values. The Halfen Ultra Dowel System has published shear values and was chosen as the preferred system in the design. There are several manufacturers of shear dowel systems, none of which are produced in the United States. The following is a list of known manufacturers of shear dowel systems and the location of production:

Halfen USA – Produced in England by Ancon (sister company)

Halfen Germany – Produced in Germany

Meadow Burke - Produced in England by Ancon

Ancon – Produced in England, sells in US through Halfen and Meadow Burke.

Schoeck – Produced in Germany

Jordahl – Produced in England

Frank – Produced in Germany

H-BAU – Produced in Germany

Plaka – Ireland

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The construction schedule shows that the slab on grade forming and rebar installation will start in late October of 2016 with delivery of the shear dowels to the site required in late September. The manufacturer of the Halfen system has confirmed that the product line is not currently produced in the United States and could not be produced in the US within the delivery schedule required by project.

There will be approximately 15,300 linear feet of expansion joints subject to using the shear dowel system. There will be approximately 6120 shear dowel systems installed on the project. The expansion joint details are shown in Attachments 2 and 3. The contractor for the Project, Dragados, USA, has reported that the material cost for the shear dowel systems to be provided is approximately \$1,000,000 USD.

Waiver of the AIS requirement for the dowel systems is necessary to maintain the schedule of the project and the integrity of the design. We request this waiver be granted.

Sincerely,

Handwritten signature of Mark J. Hammer, PE in black ink.

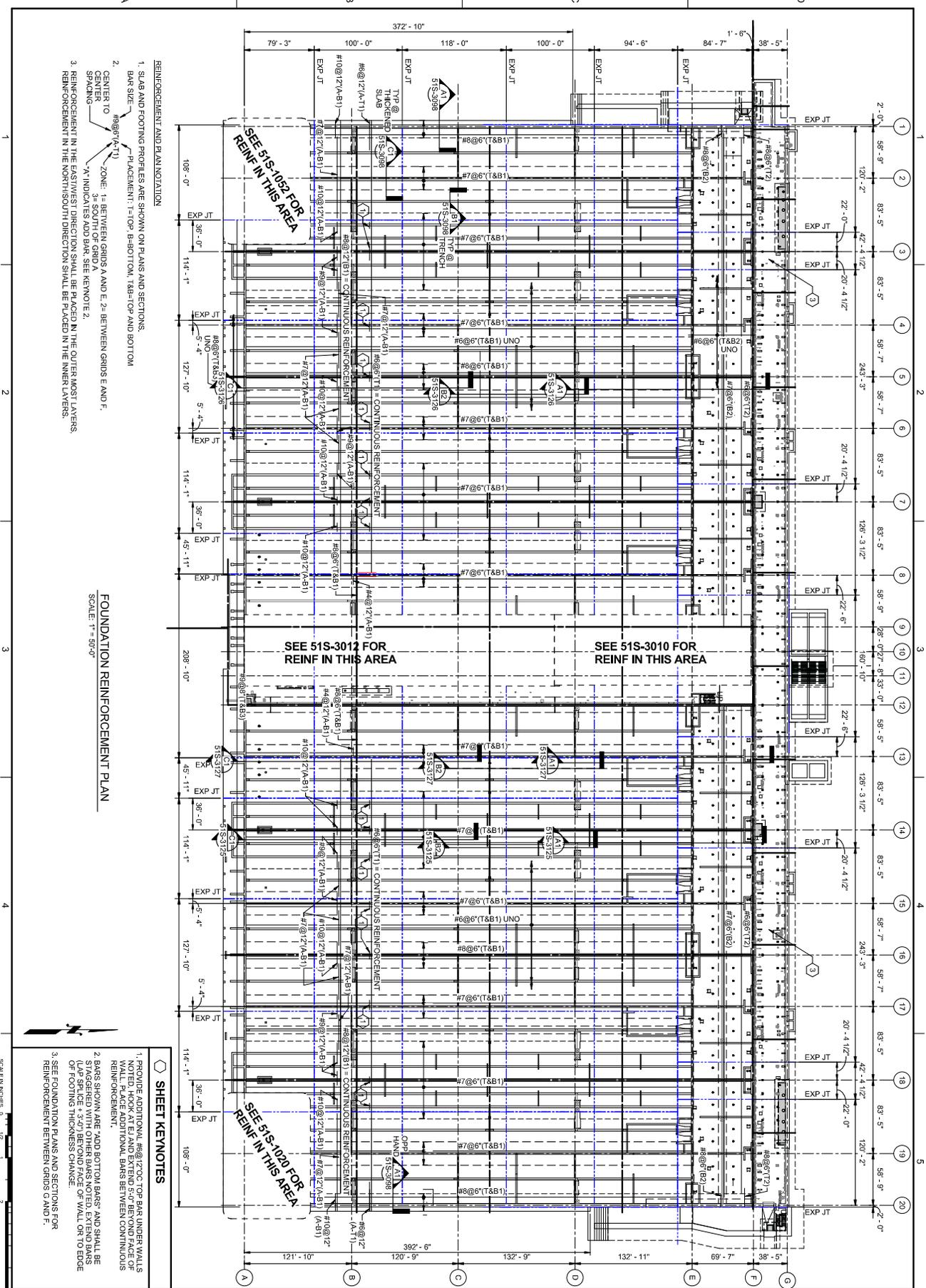
Attachments:

A: EXPANSION JOINT LOCATIONS

B: EXPANSION JOINT DETAILS SLAB ON GRADE

C: EXPANSION JOINT DETAILS WALLS

Attachment A : Expansion Joint Locations



- REINFORCEMENT AND PLAN NOTATION**
1. SLAB AND FOOTING PROFILES ARE SHOWN ON PLANS AND SECTIONS. BAR SIZE - PLACEMENT: 1-TOP- BOTTOM, 1&B-TOP AND BOTTOM
 2. CENTER TO CENTER - ZONE: 1- BETWEEN GRIDS A AND E, 2- BETWEEN GRIDS E AND F, 3- SOUTH OF GRID A
 3. REINFORCEMENT IN THE EAST/WEST DIRECTION SHALL BE PLACED IN THE OUTER MOST LAYERS. REINFORCEMENT IN THE NORTH/SOUTH DIRECTION SHALL BE PLACED IN THE INNER LAYERS.

FOUNDATION REINFORCEMENT PLAN
 SCALE: 1" = 50'-0"

- SHEET KEYNOTES**
1. PROVIDE ADDITIONAL #6@12"OC TOP BAR UNDER WALLS NOTED: HOOK AT E/D AND EXTEND 5'-0" BEYOND FACE OF REINFORCEMENT. PROVIDE ADDITIONAL BARS BETWEEN CONTINUOUS REINFORCEMENT.
 2. BARS SHOWN ARE ADD BOTTOM BARS AND SHALL BE LAP SPICE 1'-3"0" BEYOND FACE OF WALL OR TO EDGE OF FOOTING THICKNESS CHANGE.
 3. SEE FOUNDATION PLANS AND SECTIONS FOR REINFORCEMENT BETWEEN GRIDS C AND F.

MARK	DATE	DESCRIPTION
DESIGNED	S. PARRIS	
CHECKED	M. HIBEL	
DATE	L. FRENCH	
FILE NAME	R. RAMPFISSEITER	
PROJECT	BIOWATER	
CONTRACT NUMBER	179173	
CONTRACT REVISION NUMBER	51	
SHEET NUMBER	179173	
DRAWING NUMBER	51S-1003	
DATE	3/30/2016	

REGIONALISAN
 REGIONALISAN
 10000 Regional Center Drive, Suite 200
 Dallas, TX 75243
 Phone: 972.933.2222
 Fax: 972.933.2222

EnviWater
 Environmental Solutions
 179173

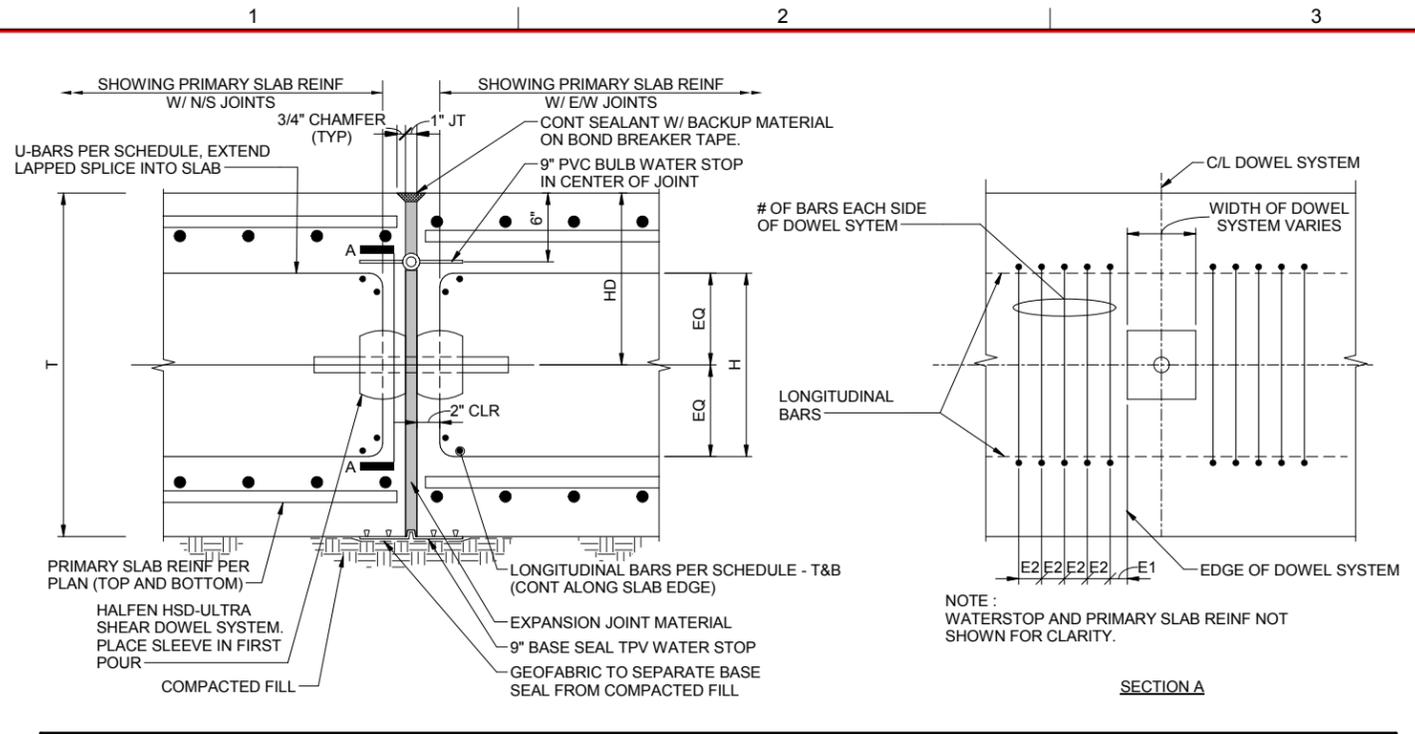
BLACK & VEATCH
 A world of difference
 Black & Veatch Corporation
 1305 Delaware Street, Suite 200
 Denver, CO 80202
 Phone: 303.733.2222
 Fax: 303.733.2222

ORIGINAL STAMPED BY
 ROBERT NO. 5490
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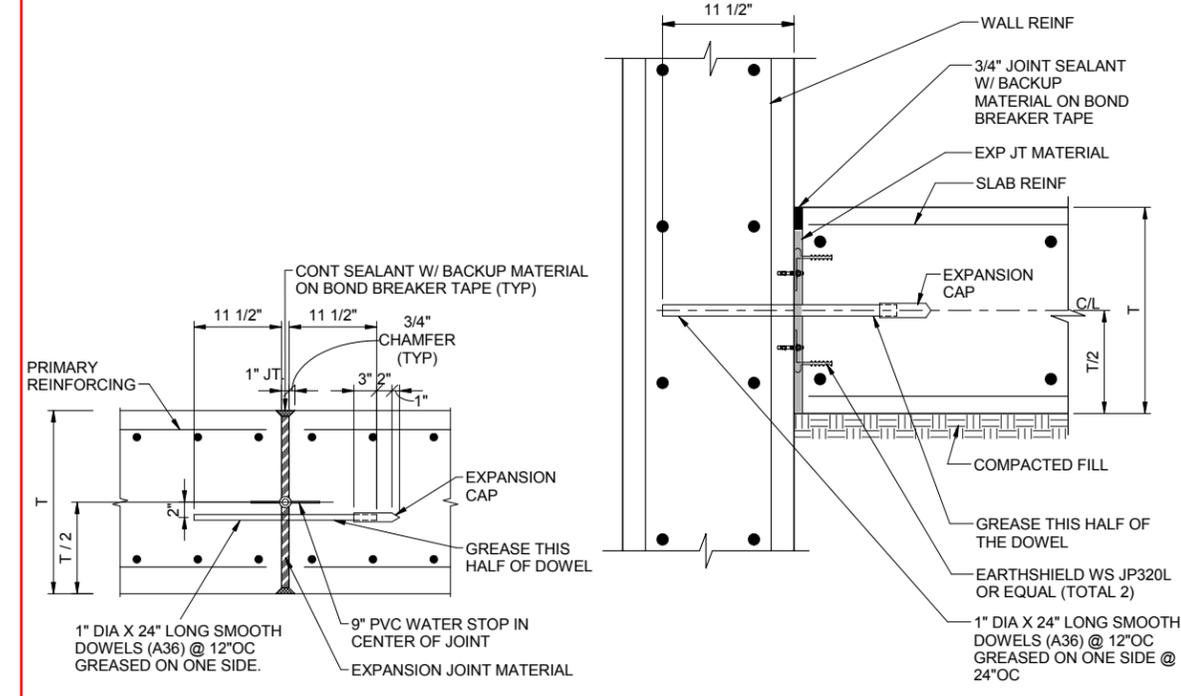
BIOLOGICAL NITRITENITRENT REMOVAL (BNR) PRODUCT

MARK	DATE	DESCRIPTION
DESIGNED	S. PARRIS	
CHECKED	M. HIBEL	
DATE	L. FRENCH	
FILE NAME	R. RAMPFISSEITER	
PROJECT	BIOWATER	
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DATE	3/30/2016	



DOWEL SCHEDULE									
DESIGNATION	JOINT TYPE	DOWEL TYPE	HEIGHT TO DOWEL "HD"	DOWEL SPACING "DS" UNO	# & TYPE OF U-BARS (EA SIDE)	HEIGHT OF U-BAR "H"	E1 SPACING	E2 SPACING	LONGITUDINAL BARS TOP & BOTTOM
51S152A	T=30", N/S JOINT	HSD-ULTRA -35	16"	2'-6"	5 - #5	16"	1 1/2"	2"	2 - #5
51S152B	T=24", N/S JOINT	HSD-ULTRA -22	12"	2'-6"	4 - #4	10"	1 1/4"	2"	2 - #4
51S152C	T=VARIES, E/W JOINT	HSD-ULTRA -22	12"	2'-6"	4 - #4	10"	1 1/4"	2"	2 - #4
51S152D	T=28", N/S JOINT	HSD-ULTRA -35	14 1/2"	2'-6"	5 - #5	13"	1 1/2"	2"	2 - #5

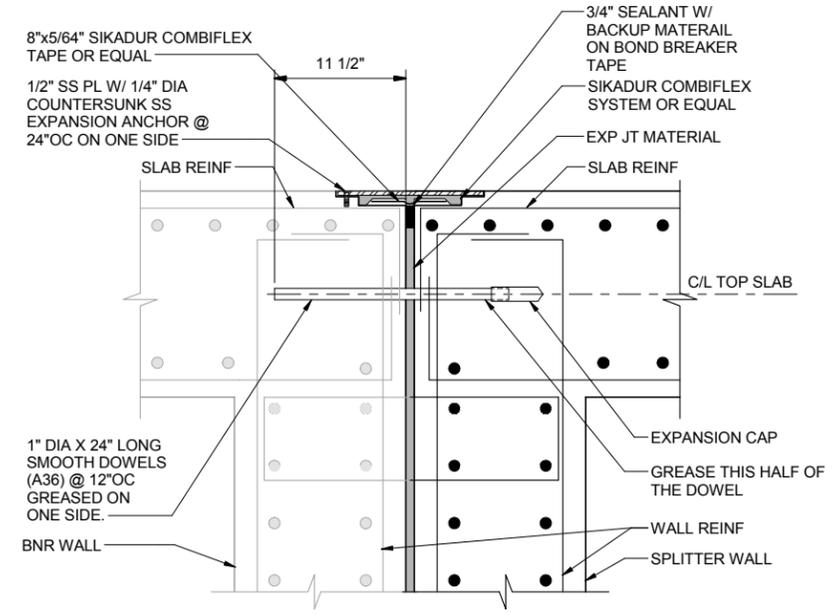
51S152 EXPANSION JOINT - TYPE 1



51S153 EXPANSION JOINT - TYPE 2

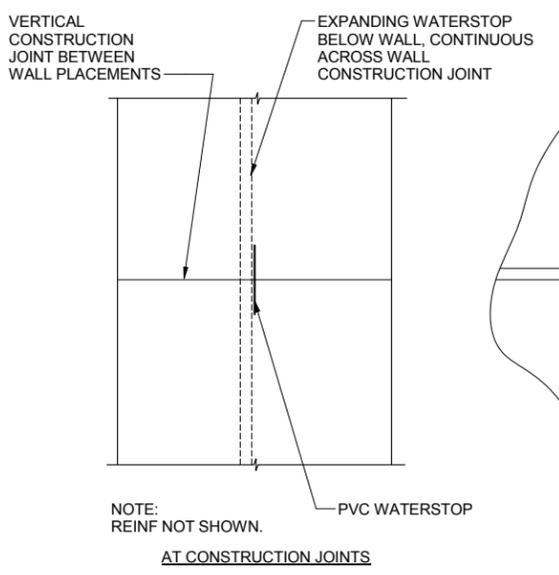
51S154 EXPANSION JOINT TYPE 3

Attachment B: Expansion Joint Details Slab on Grade



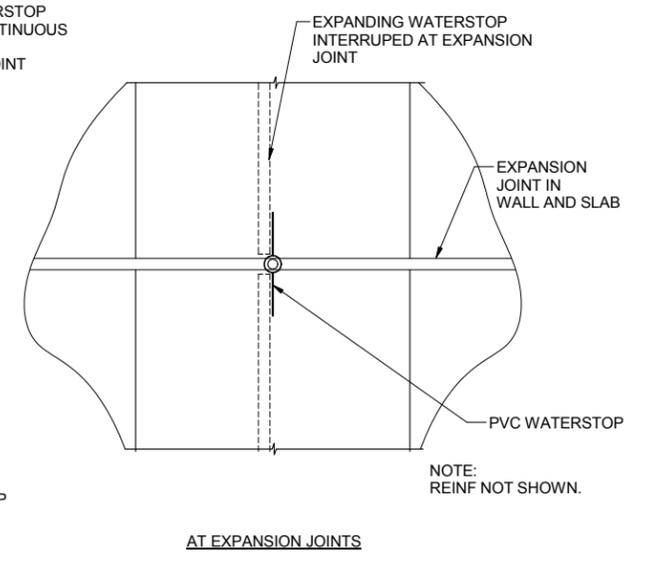
NOTES:
 1. LOWER THE TOP SLAB REINF FOR THE BOX OUT.
 2. BOX OUT DIMENSION TO BE VERIFIED WITH THE MFR.

51S155 EXPANSION JOINT - TYPE 4



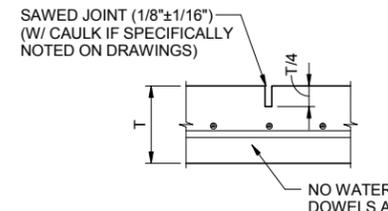
NOTE: REINF NOT SHOWN.

51S156 INTERFACE BETWEEN PVC WATERSTOP AND EXPANDING WATERSTOP



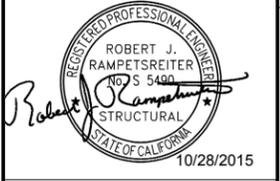
NOTE: REINF NOT SHOWN.

51S157 SAWED CONTRACTION JOINT SLAB-ON-GRADE



NOTE:
 IF SINGLE LAYER REINFORCEMENT, EVERY OTHER BAR IS DISCONTINUOUS AT JOINT.
 IF 2 LAYER REINFORCEMENT, TOP LAYER IS COMPLETELY DISCONTINUOUS AT JOINT.
 NOTE:
 JOINT FORMED WITH TOOL OR INSERT STRIP MAY BE SUBSTITUTED FOR SAWED TYPE ONLY WITH PRIOR ACCEPTANCE BY THE ENGINEER.

SUB CONSULTANT



BIOLOGICAL NUTRIENT REMOVAL (BNR) PROJECT

BID DOCUMENTS
 OCTOBER 28, 2015

MARK	DATE	DESCRIPTION
ISSUE BLOCK		
DESIGNED	S. PARKS	
DRAWN	L. FRENCH	
CHECKED	B. BERGDALL	
APPROVED	R. RAMPETSREITER	
FILENAME	4208-3D-BNRB.rvt	
DESIGNER PROJECT NUMBER	179173	
CONTRACT NUMBER	4208	
CONTRACT SEQUENCE NUMBER	51	
DISCIPLINE	STRUCTURAL	
STANDARD DETAILS		
DRAWING NUMBER	51S-5002	365 OF 467

PLOT DATE: 10/23/2015 4:08:03 PM
 CAD User: L. FRENCH
 PATH AND FILENAME: C:\RevitLocal Files\4208-3D-BNRB_Jason_Seck_naz11274.rvt