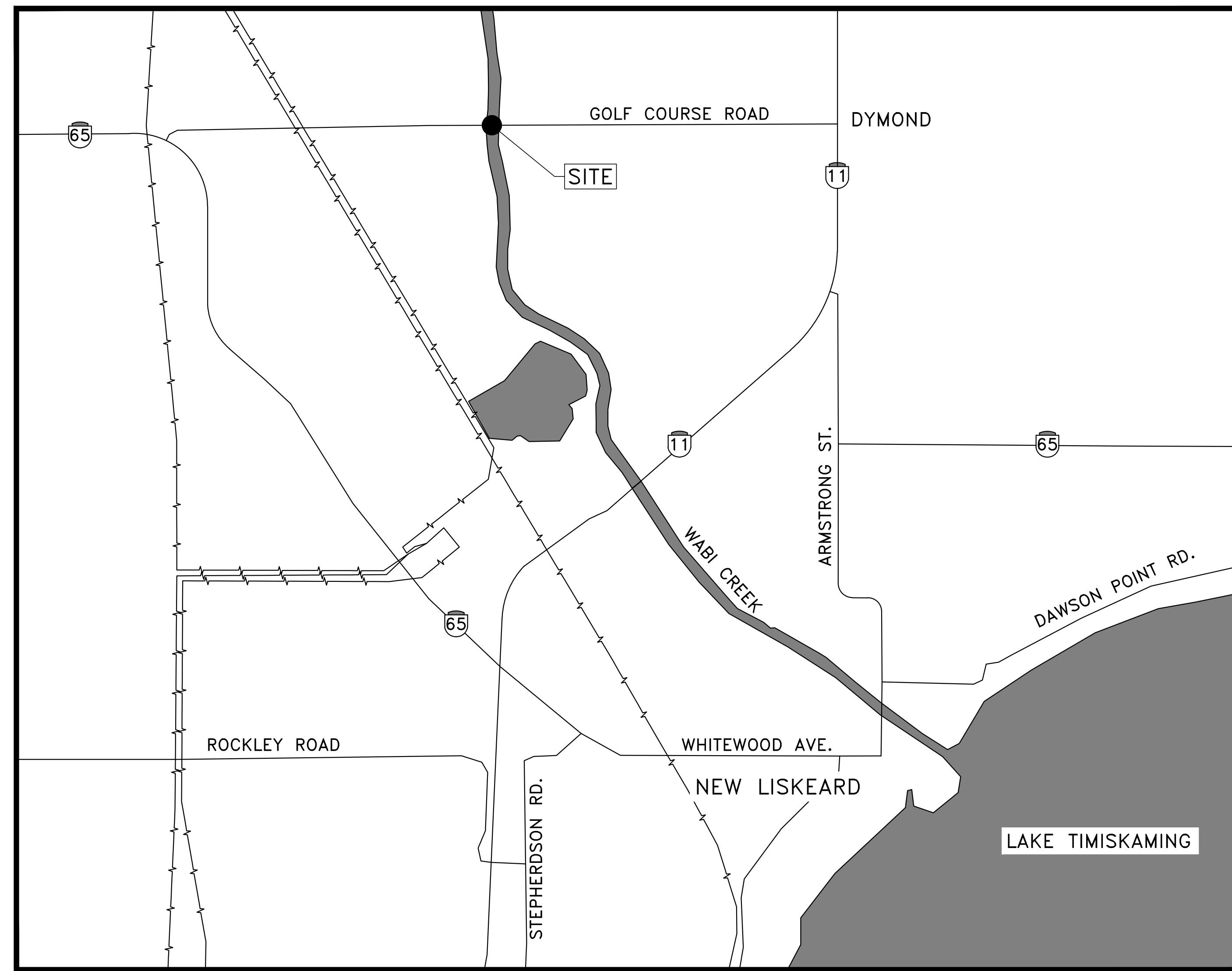
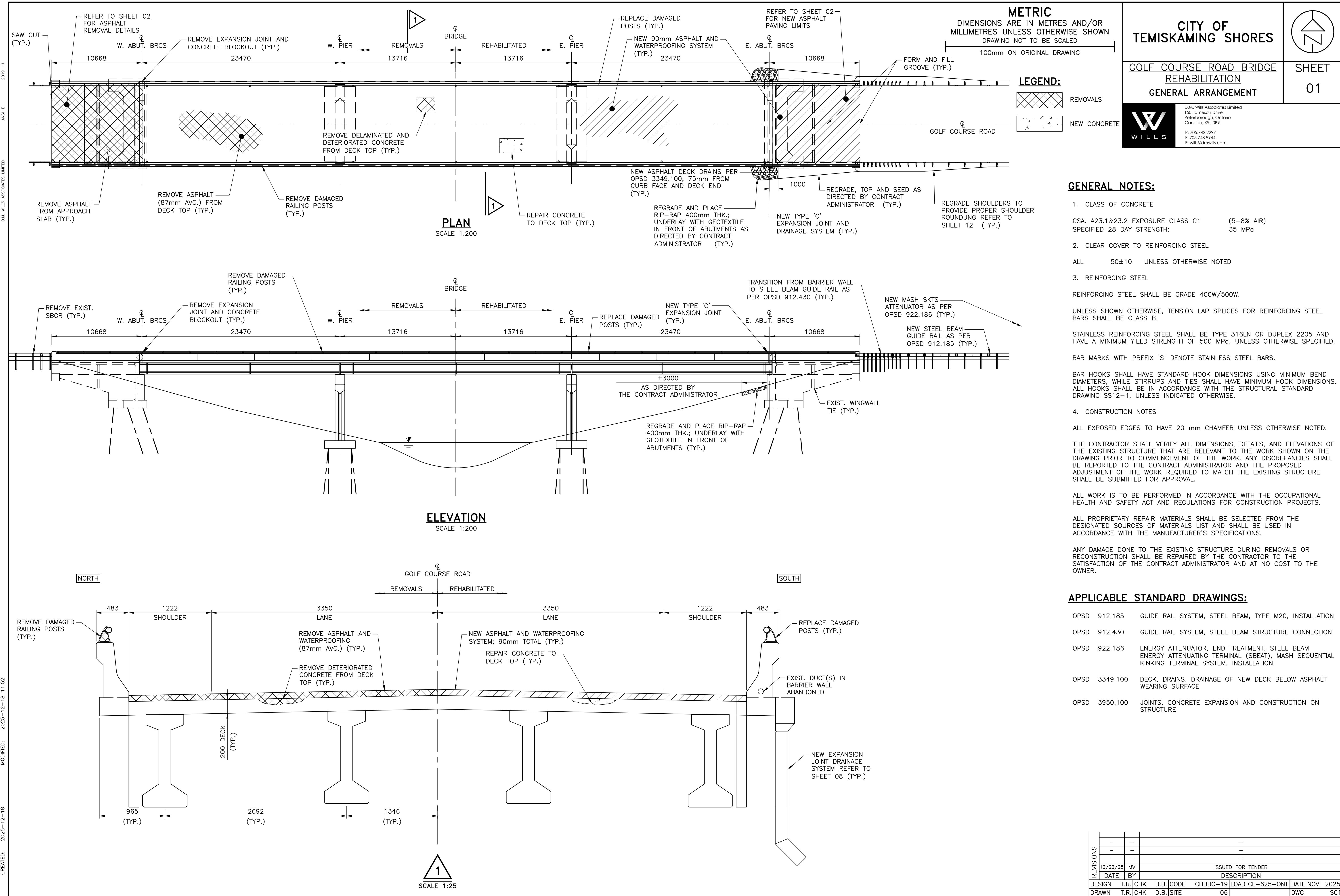


# REHABILITATION OF GOLF COURSE ROAD BRIDGE

CITY OF TEMISKAMING SHORES  
CONTRACT # PW-RFT-001-2026



SHEET LIST TABLE	
SHEET NUMBER	SHEET TITLE
01	GENERAL ARRANGEMENT
02	SITE PLAN
03	TRAFFIC STAGING PLAN
04	CONSTRUCTION STAGING
05	REMOVALS
06	NEW CONSTRUCTION
07	STRIP SEAL EXPANSION JOINT TYPE 'C' DETAILS
08	EXPANSION JOINT DRAINAGE SYSTEM, CATCH BASIN AND DOWNPipe
09	RAILING FOR BARRIER WALL DETAILS
10	STRIP SEAL EXPANSION JOINT ASSEMBLY
11	SEQUENCE OF EXPANSION JOINT INSTALLATION
12	TYPICAL DEATILS



## NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.

## LEGEND:



## FULL DEPTH ASPHALT REMOVAL ON CONCRETE SURFACES

PARTIAL DEPTH ASPHALT REMOVAL (AS NOTED)

## LEGEND

The diagram illustrates a cross-section of a paving structure. It consists of three distinct layers: a top layer with diagonal hatching representing a 40mm surface course asphalt, a middle layer with horizontal hatching representing a 40mm base course asphalt, and a bottom layer with a solid black background representing 10mm waterproofing.

40mm SURFACE COURSE ASPHALT

## METRIC

DIMENSIONS ARE IN METRES AND/OR  
MILLIMETRES UNLESS OTHERWISE SHOWN  
DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

# CITY OF MISKAMING SHORES



GOLF COURSE ROAD BRIDGE  
REHABILITATION  
SITE PLAN

# SHEET 02

D.M. Wills Associates Limited  
150 Jameson Drive  
Peterborough, Ontario  
Canada, K9J 0B9

P. 705.742.2297  
F. 705.748.9944  
E. [wills@dmwills.com](mailto:wills@dmwills.com)

D.M. Wills Associates Limited  
150 Jameson Drive  
Peterborough, Ontario  
Canada, K9J 0B9

P. 705.742.2297  
F. 705.748.9944  
E. [wills@dmwills.com](mailto:wills@dmwills.com)

ANSI-B 2019-11

D.M. WILLS ASSOCIATES LIMITED

MODIFIED: 2025-12-22 15:58

**NOTES:**

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.

**LEGEND:**

- FULL DEPTH ASPHALT REMOVAL ON CONCRETE SURFACES
- PARTIAL DEPTH ASPHALT REMOVAL (AS NOTED)

**LEGEND:**

- 40mm SURFACE COURSE ASPHALT  
40mm BASE COURSE ASPHALT  
10mm WATERPROOFING
- 40mm SURFACE COURSE ASPHALT

**Metric**  
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN  
DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

**CITY OF TEMISKAMING SHORES**

**GOLF COURSE ROAD BRIDGE REHABILITATION SITE PLAN**

**02**

**WILLS**  
D.M. Wills Associates Limited  
150 Jamieson Drive  
Peterborough, Ontario  
Canada, K9J 0B9  
P. 705.742.2297  
F. 705.748.9944  
E. [wills@dmwills.com](mailto:wills@dmwills.com)

**REMOVALS**  
SCALE 1:300

**NEW CONSTRUCTION**  
SCALE 1:300

# REMOVAL

SCALE 1:300

000

10

# NEW CONSTRUCTION

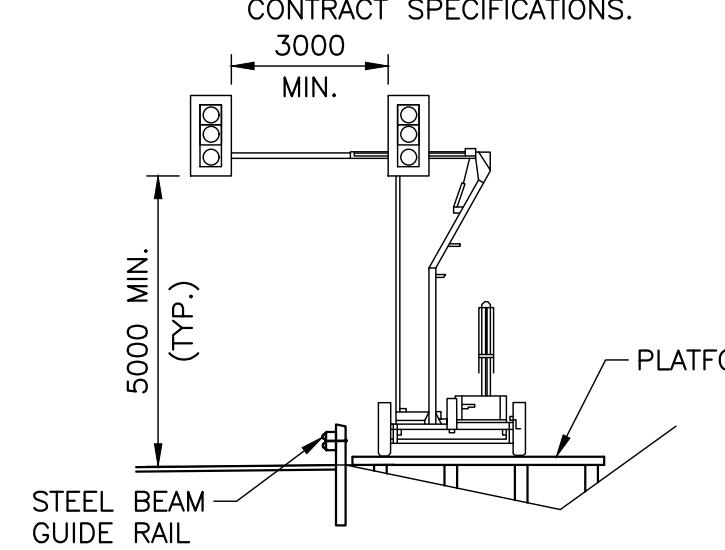
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12/22/25	MV	ISSUED FOR TENDER							
DATE	BY	DESCRIPTION							
SIGN	TR	CHK	---	CODE	CHBDC-19	LOAD	CL-625-ONT	DATE	NOV. 20
AWN	JAH	CHK	TR	SITE	06			DWG	S

**NOTES:**

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.

NOTE: TEMPORARY ILLUMINATION SHALL BE PROVIDED PER CONTRACT SPECIFICATIONS.



**DETAIL 'A'**  
SCALE 1:150

**METRIC**

DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN  
DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

CITY OF  
TEMISKAMING SHORES

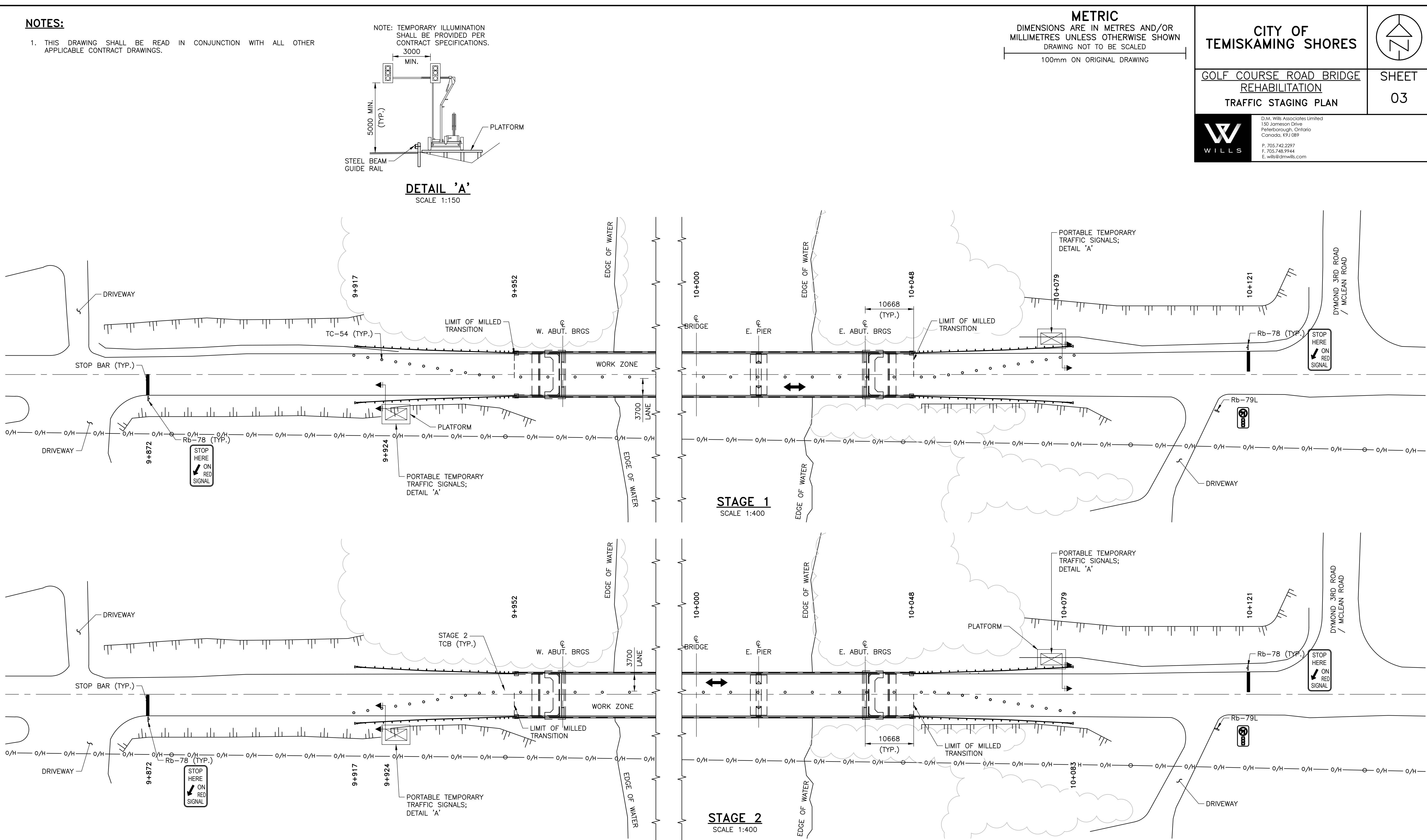


GOLF COURSE ROAD BRIDGE  
REHABILITATION  
TRAFFIC STAGING PLAN

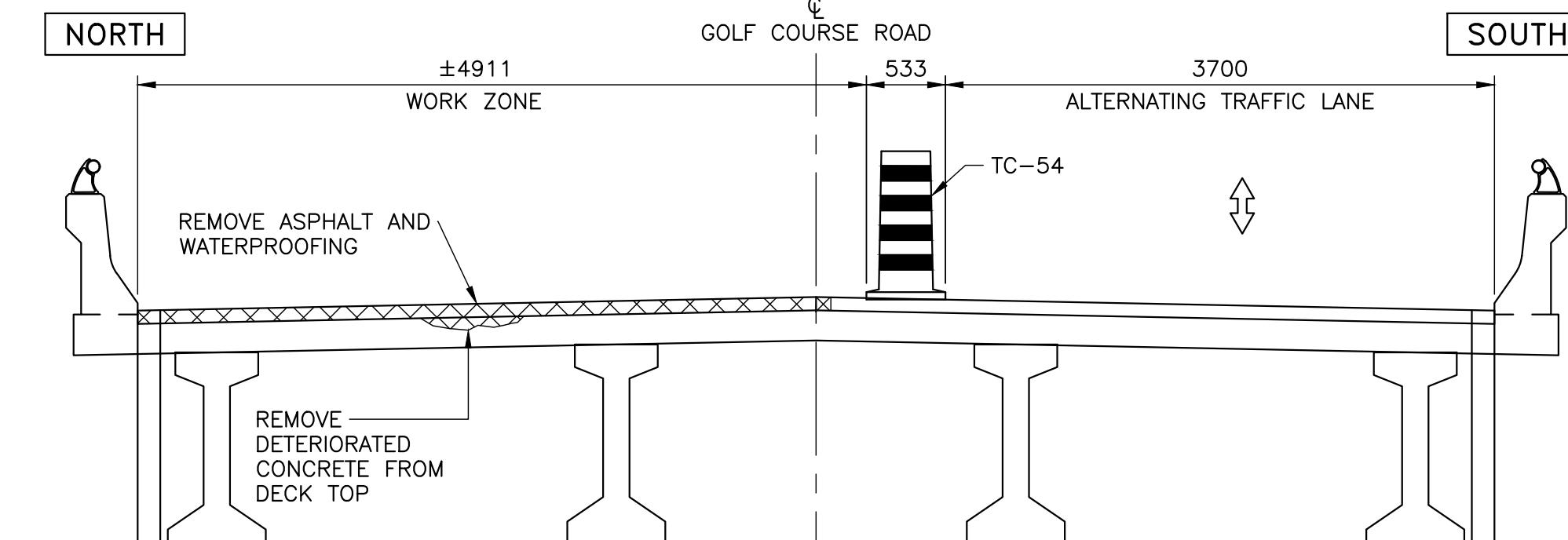
SHEET  
03



D.M. WILLS Associates Limited  
150 Jamieson Drive  
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P. 705.742.2297  
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E. wills@dmwills.com

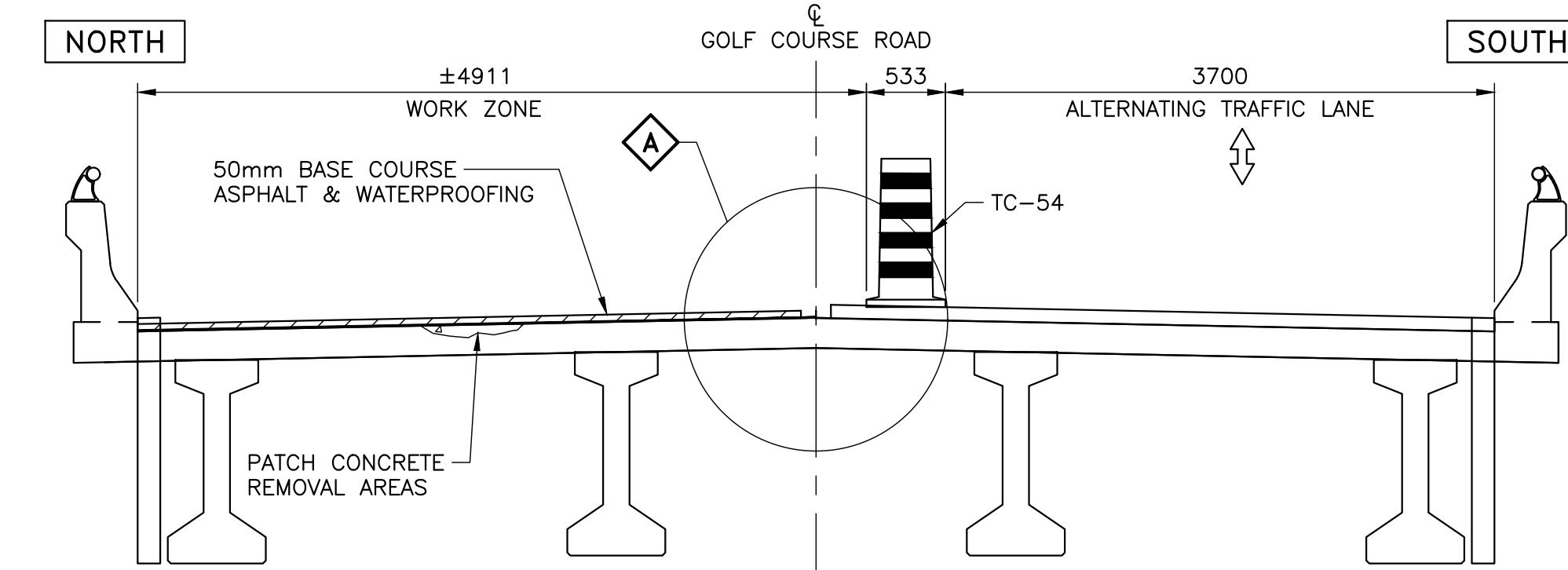


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12/22/25	MV	ISSUED FOR TENDER	
DATE	BY	DESCRIPTION	
DESIGN	T.R. / CHK	D.B. CODE CHBDC-19	LOAD CL-625-ONT DATE NOV. 2025
DRAWN	T.R. / CHK	D.B. SITE 06	DWG S03



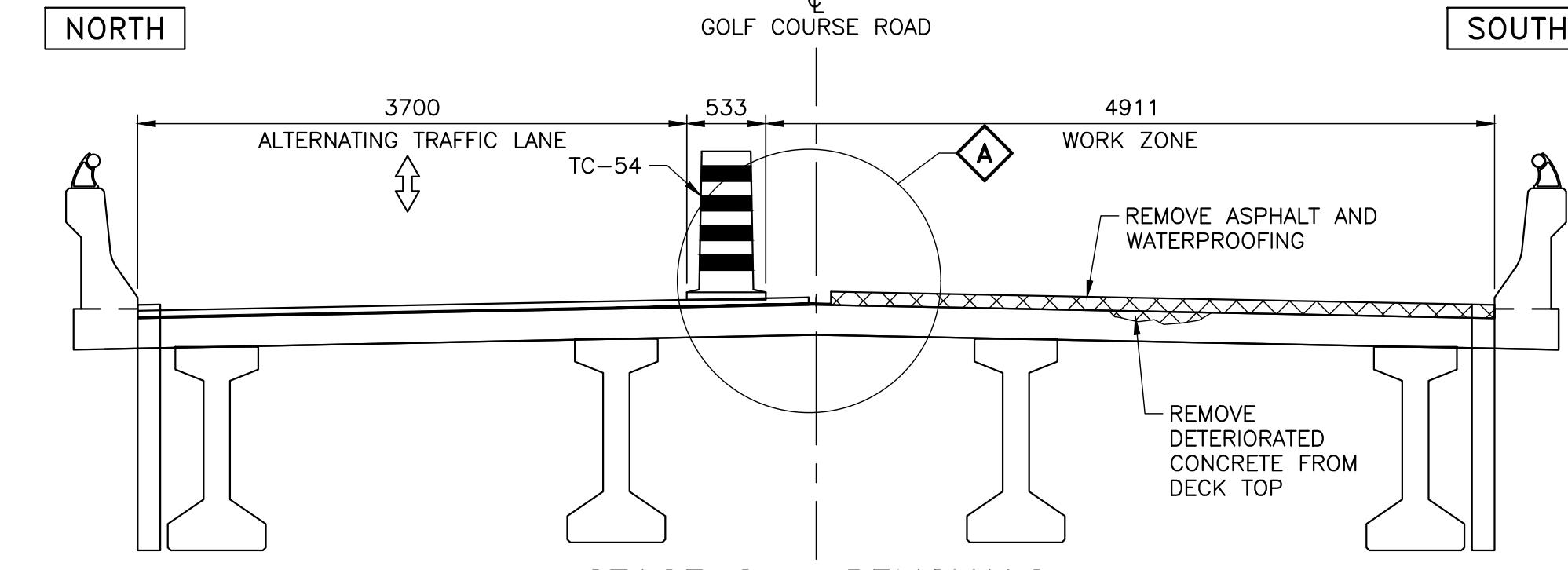
STAGE 1 - REMOVALS

SCALE 1:40



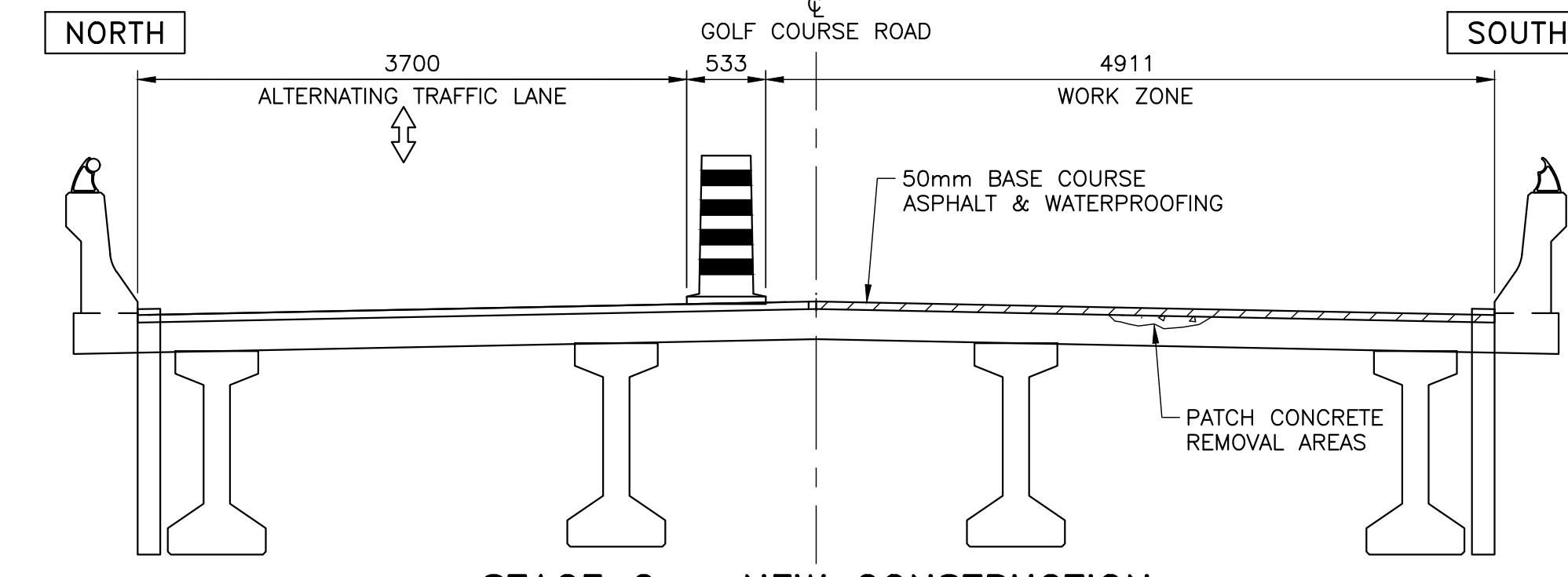
STAGE 1 - NEW CONSTRUCTION

SCALE 1:40



STAGE 2 - REMOVALS

SCALE 1:40

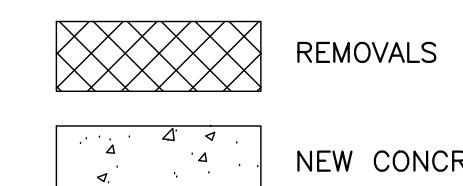


STAGE 2 - NEW CONSTRUCTION

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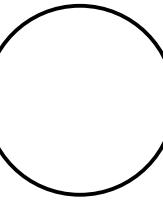
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MILLIMETRES UNLESS OTHERWISE SHOWN  
DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

**LEGEND:**



REMOVALS  
NEW CONCRETE

**CITY OF  
TEMISKAMING SHORES**



**GOLF COURSE ROAD BRIDGE  
REHABILITATION  
CONSTRUCTION STAGING**

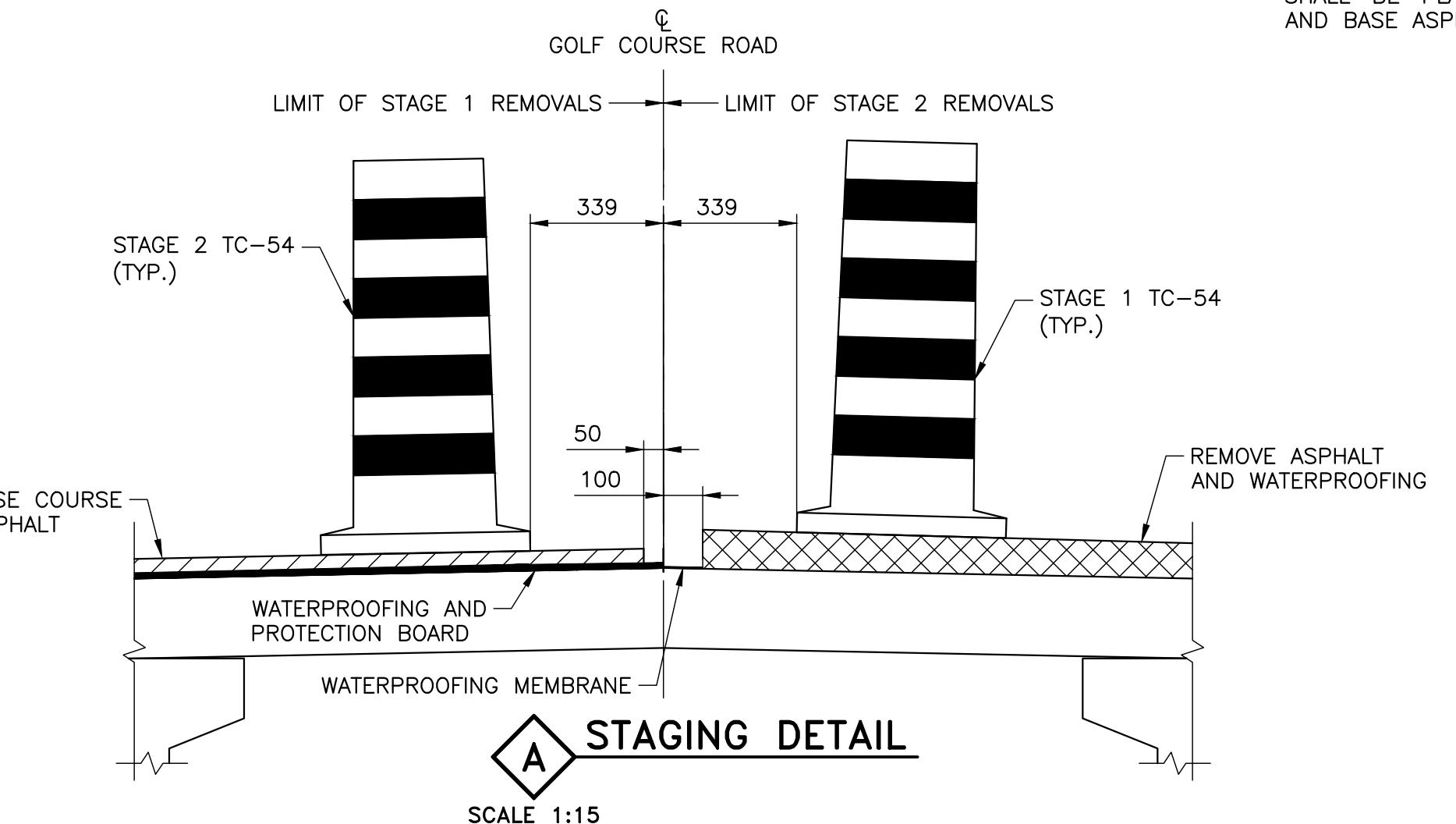
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04**

D.M. Wills Associates Limited  
150 Jamieson Drive  
Peterborough, Ontario  
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P. 705.742.2297  
F. 705.748.9944  
E. [wills@dmwills.com](mailto:wills@dmwills.com)



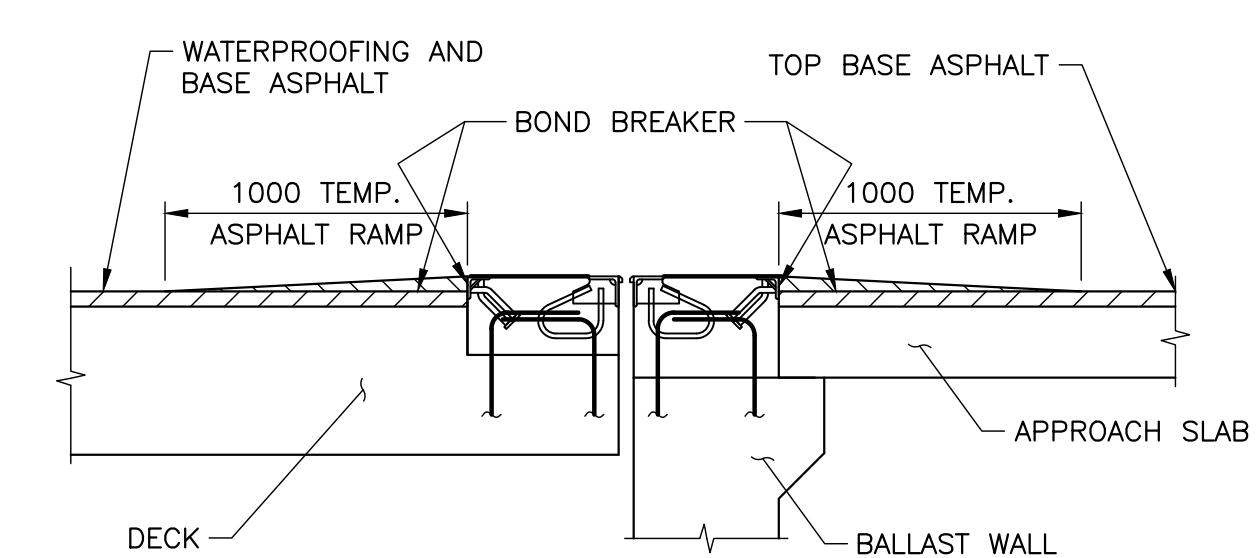
**NOTES:**

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.
2. FINAL MILL AND PAVE SURFACE ASPHALT TO BE COMPLETED UNDER FLAGGED OPERATION.
3. TEMPORARY ASPHALT RAMPS SHALL BE PLACED AGAINST EXPANSION JOINT END DAMS AFTER STAGE 1 AND STAGE 2 CONSTRUCTION. BOND BREAKER SHALL BE PLACED AT INTERFACE BETWEEN TEMPORARY ASPHALT RAMPS AND BASE ASPHALT AND END DAMS.



**A STAGING DETAIL**

SCALE 1:15

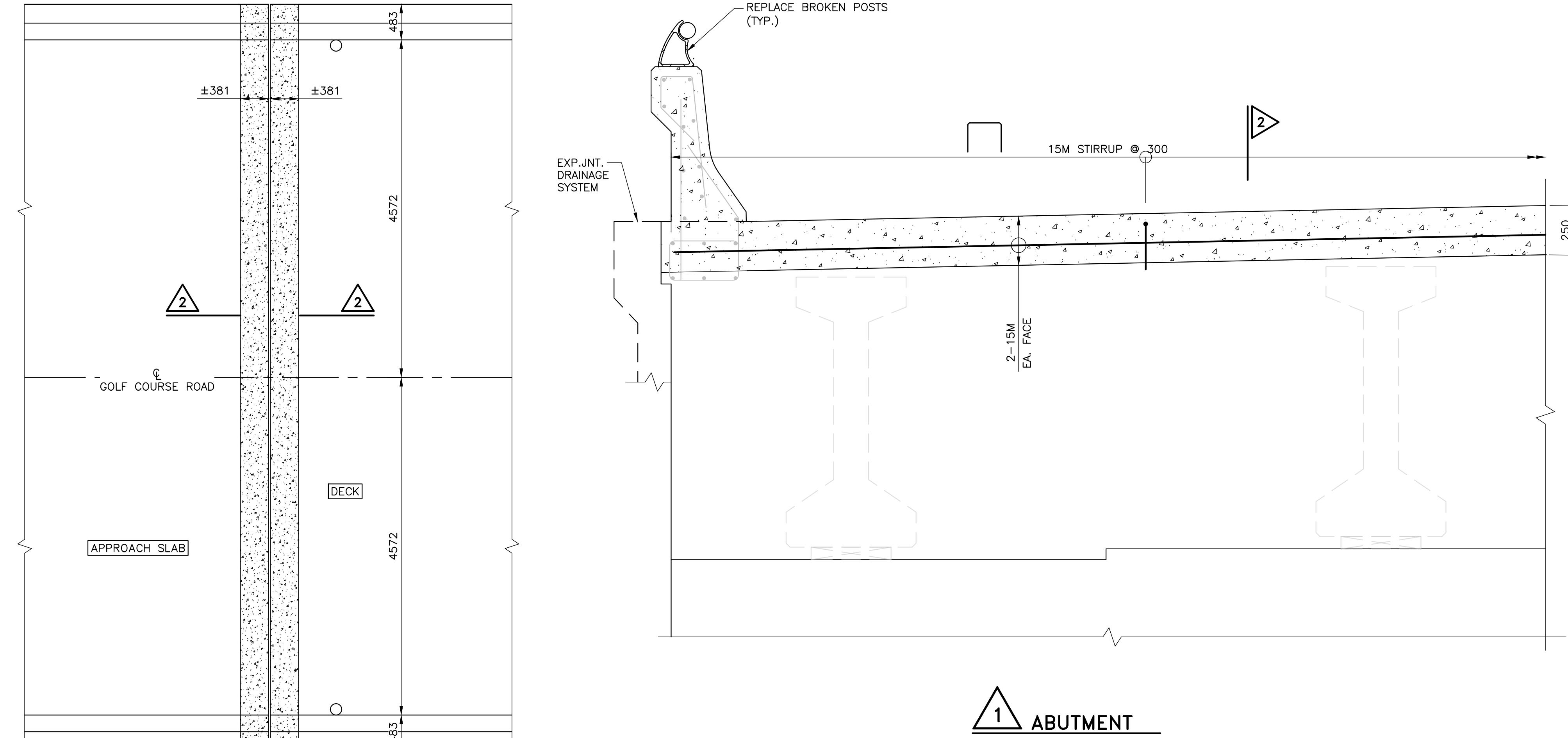


**PAVING DETAIL - EXPANSION JOINT**

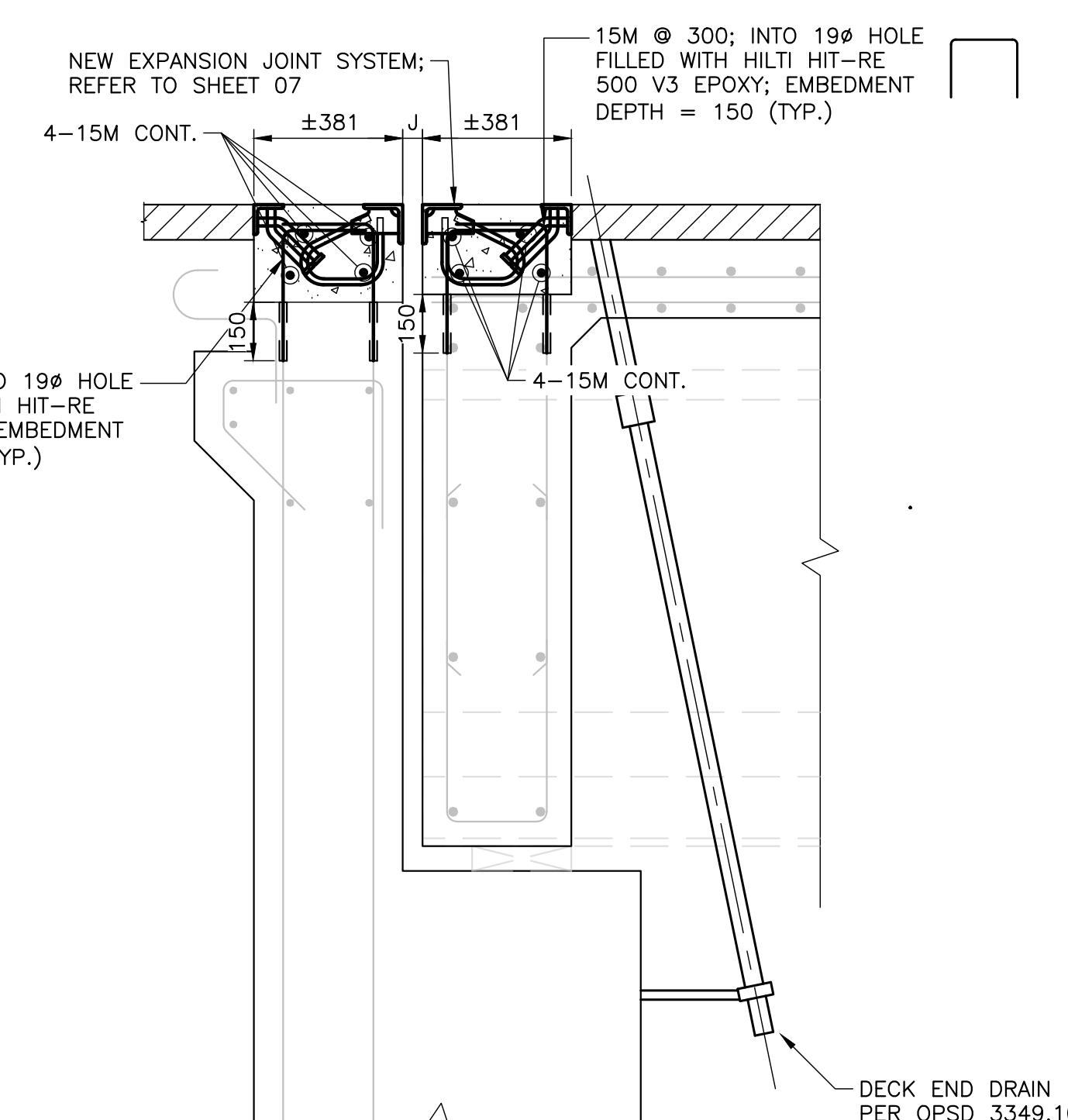
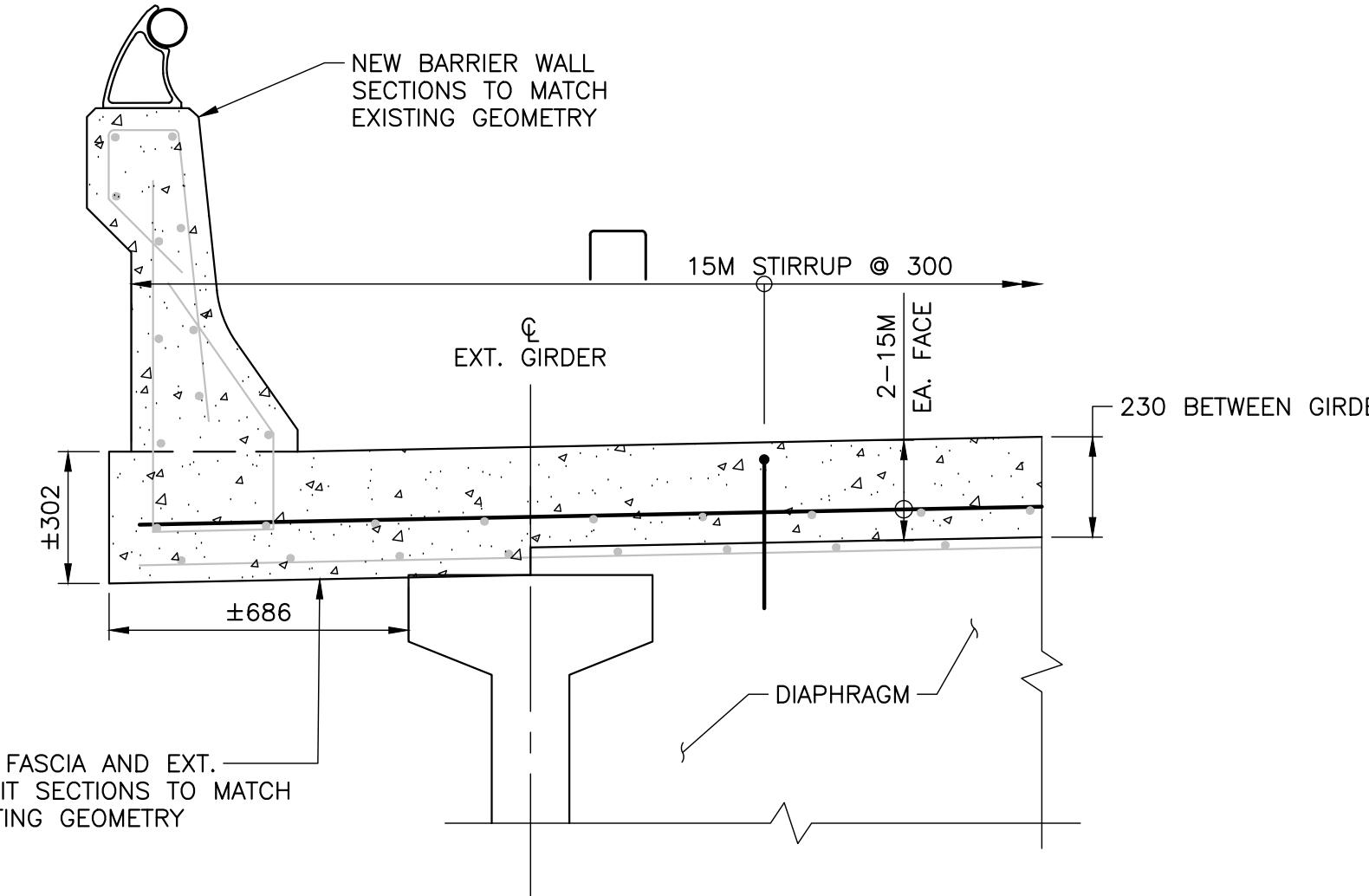
SCALE N.T.S.  
(NOTE 3)

REVISIONS	DATE	BY	DESCRIPTION
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-	-	-	-
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12/22/25 MV			ISSUED FOR TENDER
			DESCRIPTION
DESIGN	T.R.	CHK	D.B. CODE CHBDC-19 LOAD CL-625-ONT DATE NOV. 2025
DRAWN	T.R.	CHK	D.B. SITE 06 DWG S04



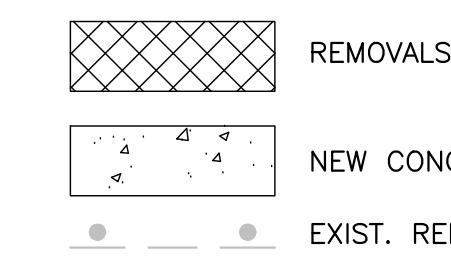


**JOINT REMOVAL AT WEST ABUTMENT**  
 (EAST ABUTMENT SIMILAR)  
 SCALE 1:40



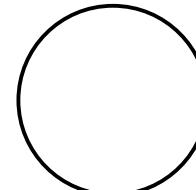
**METRIC**  
 DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN  
 DRAWING NOT TO BE SCALED  
 100mm ON ORIGINAL DRAWING

**LEGEND:**



**CITY OF TEMISKAMING SHORES**

**GOLF COURSE ROAD BRIDGE REHABILITATION NEW CONSTRUCTION I**



D.M. WILLS ASSOCIATES LIMITED  
 150 Jamieson Drive  
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 Canada, K9J 0B9  
 P. 705.742.2297  
 F. 705.748.9944  
 E. wills@mwills.com

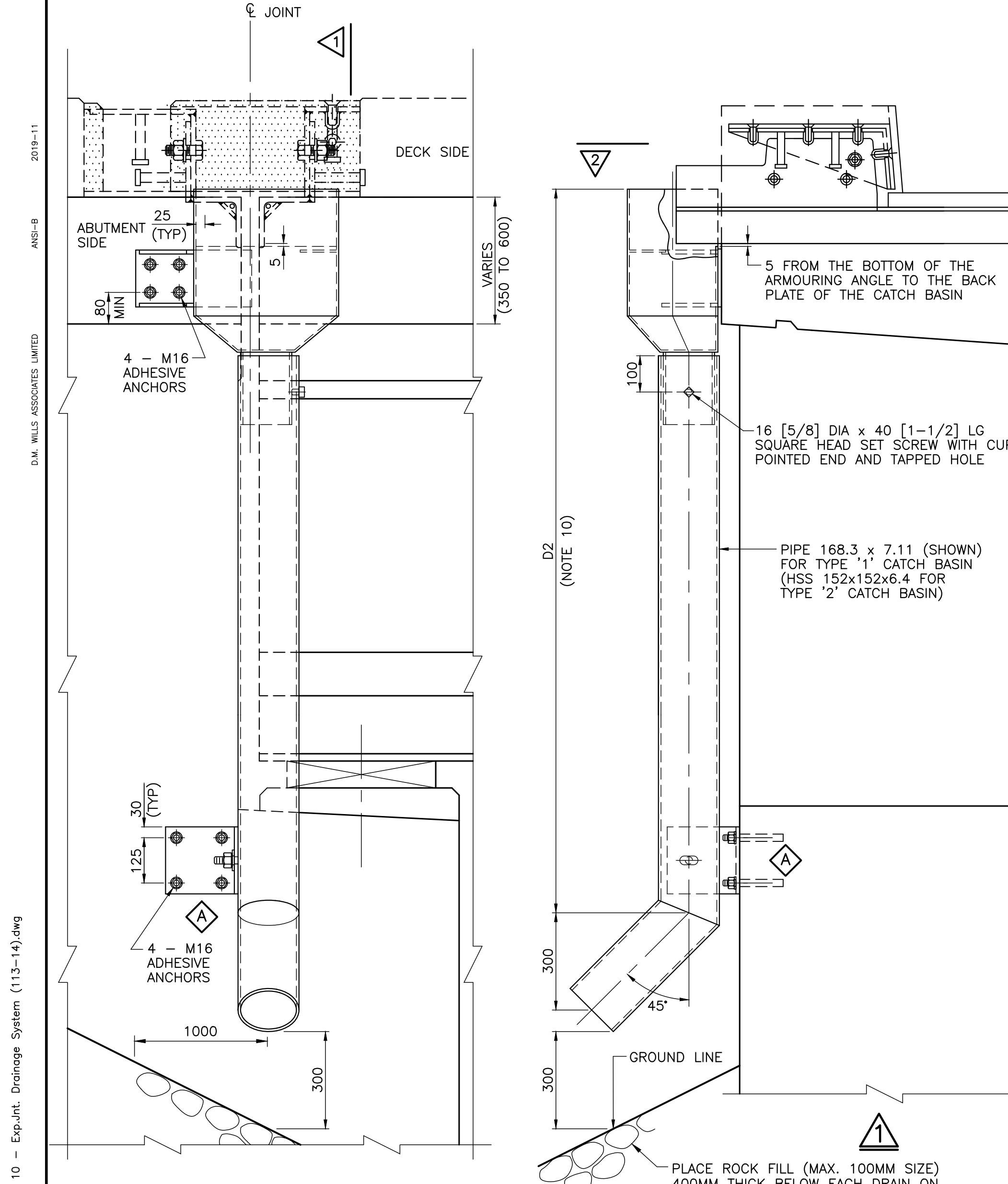
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**NOTES:**

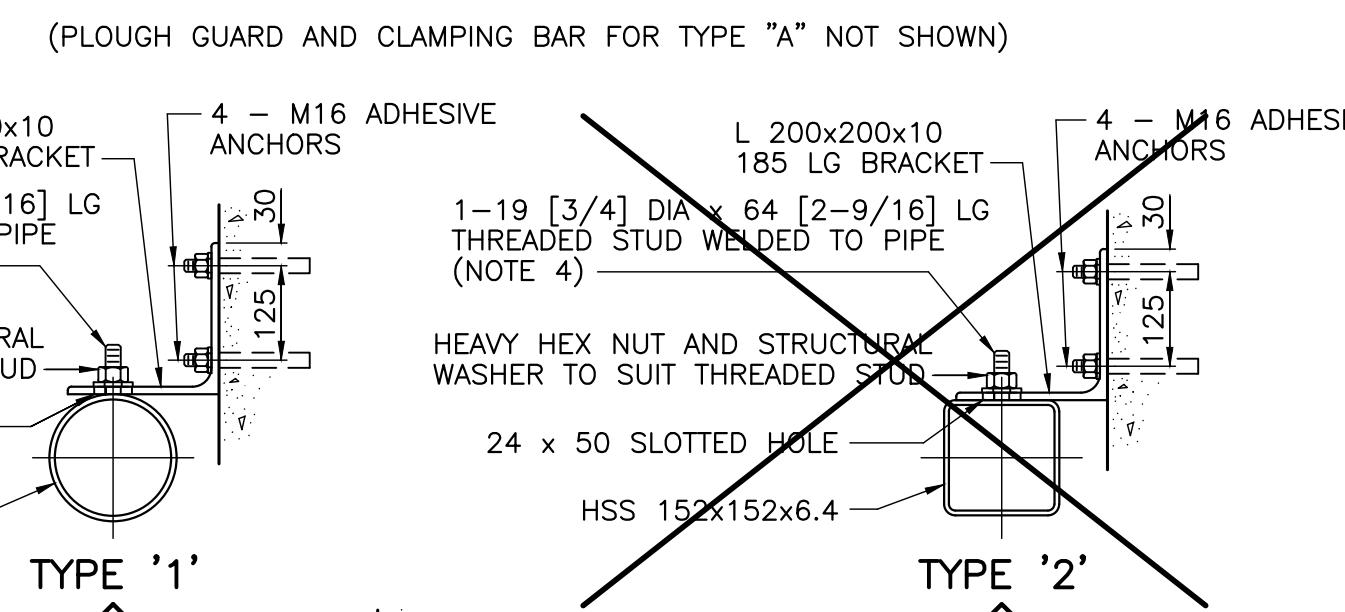
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.

REVISIONS	DATE	BY	ISSUED FOR TENDER
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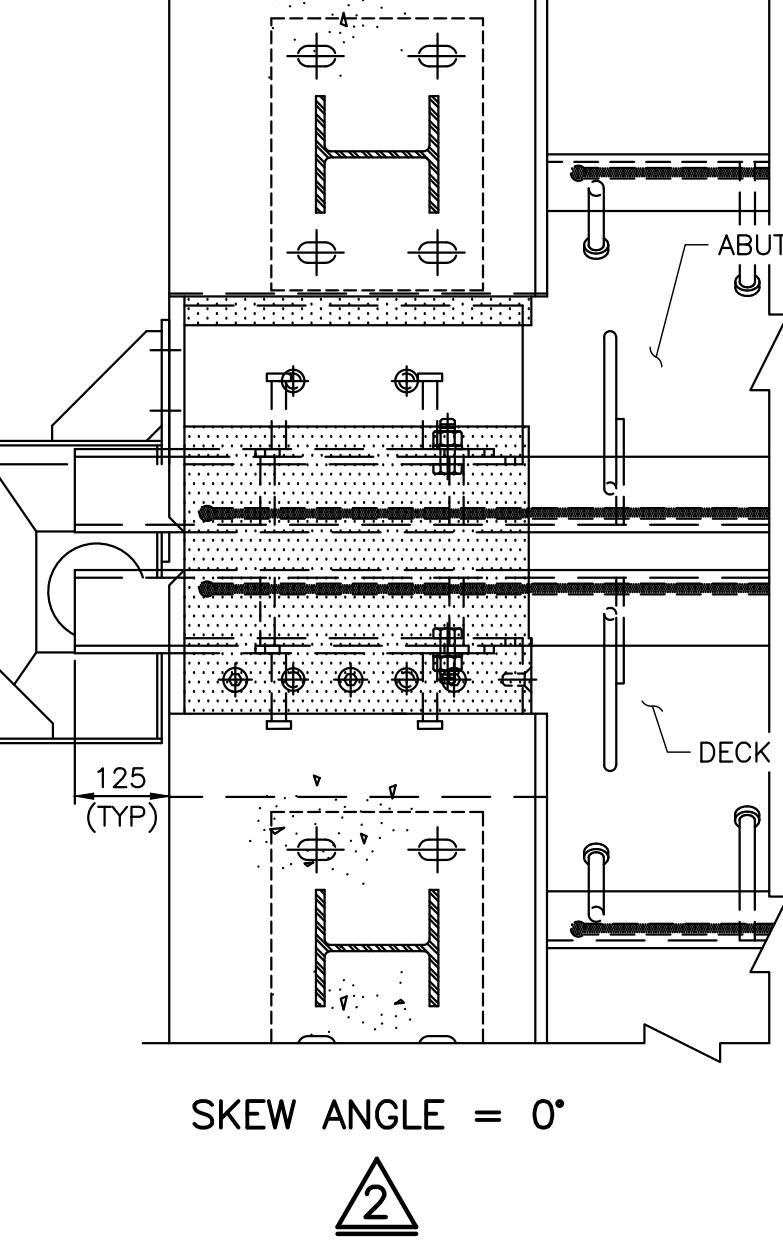
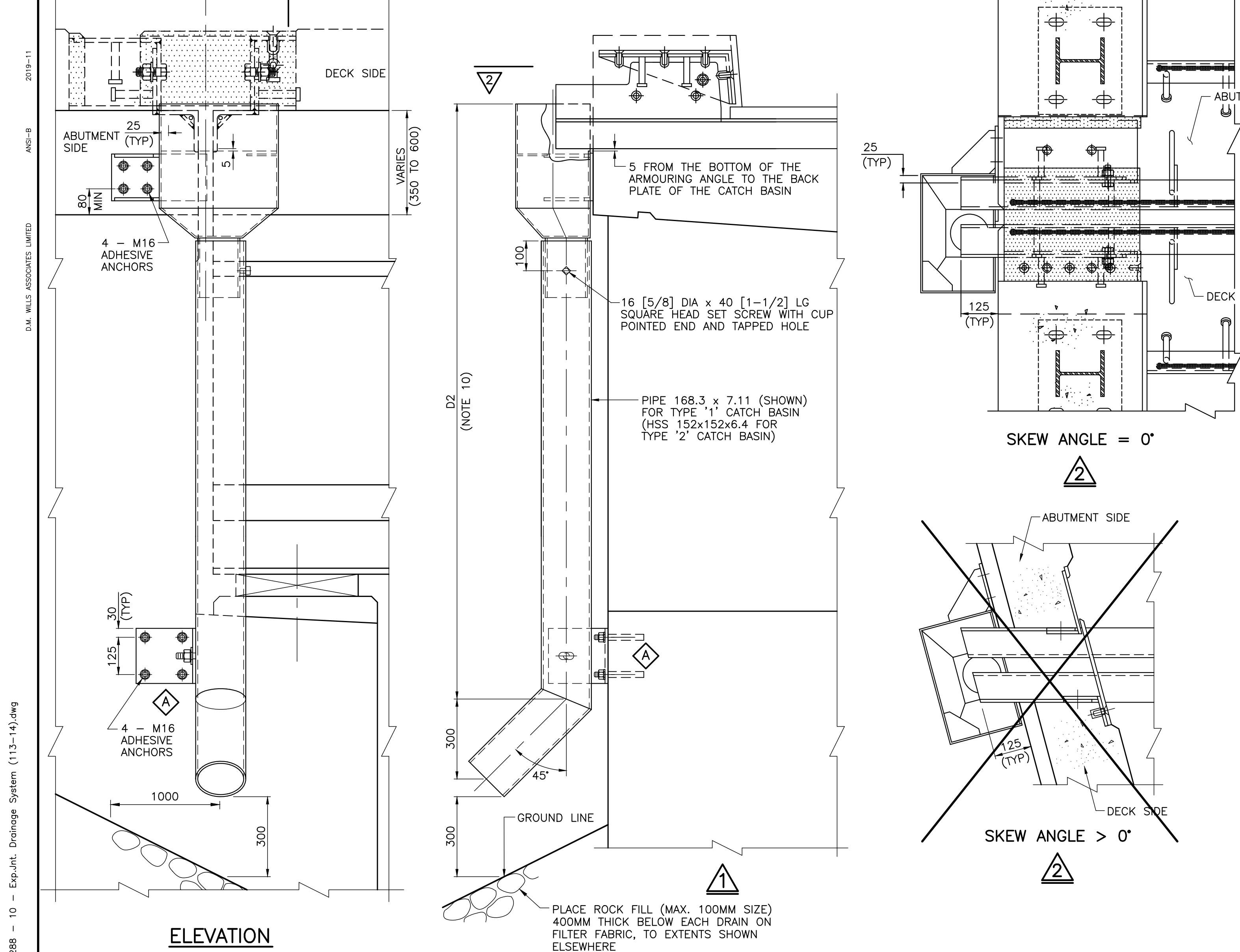


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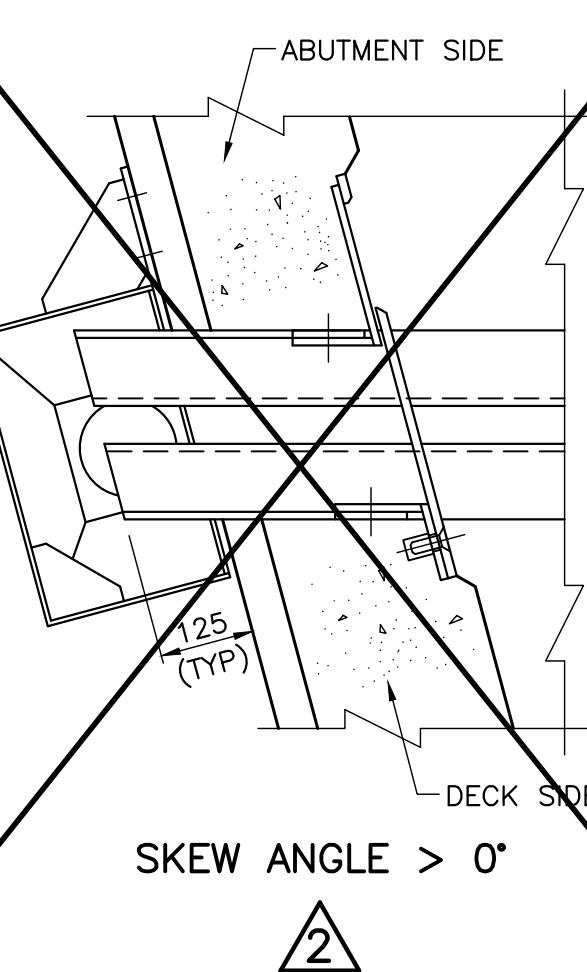


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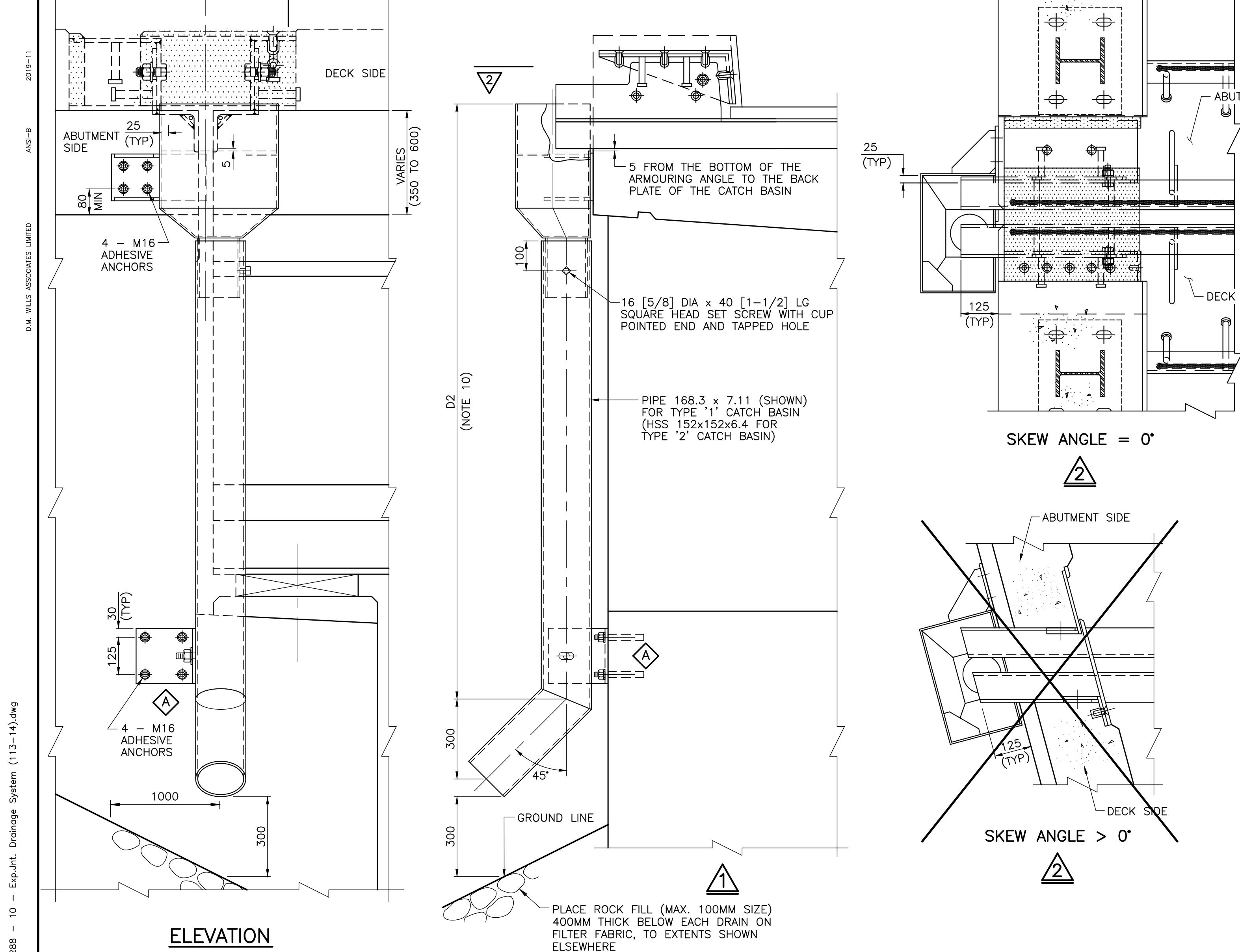
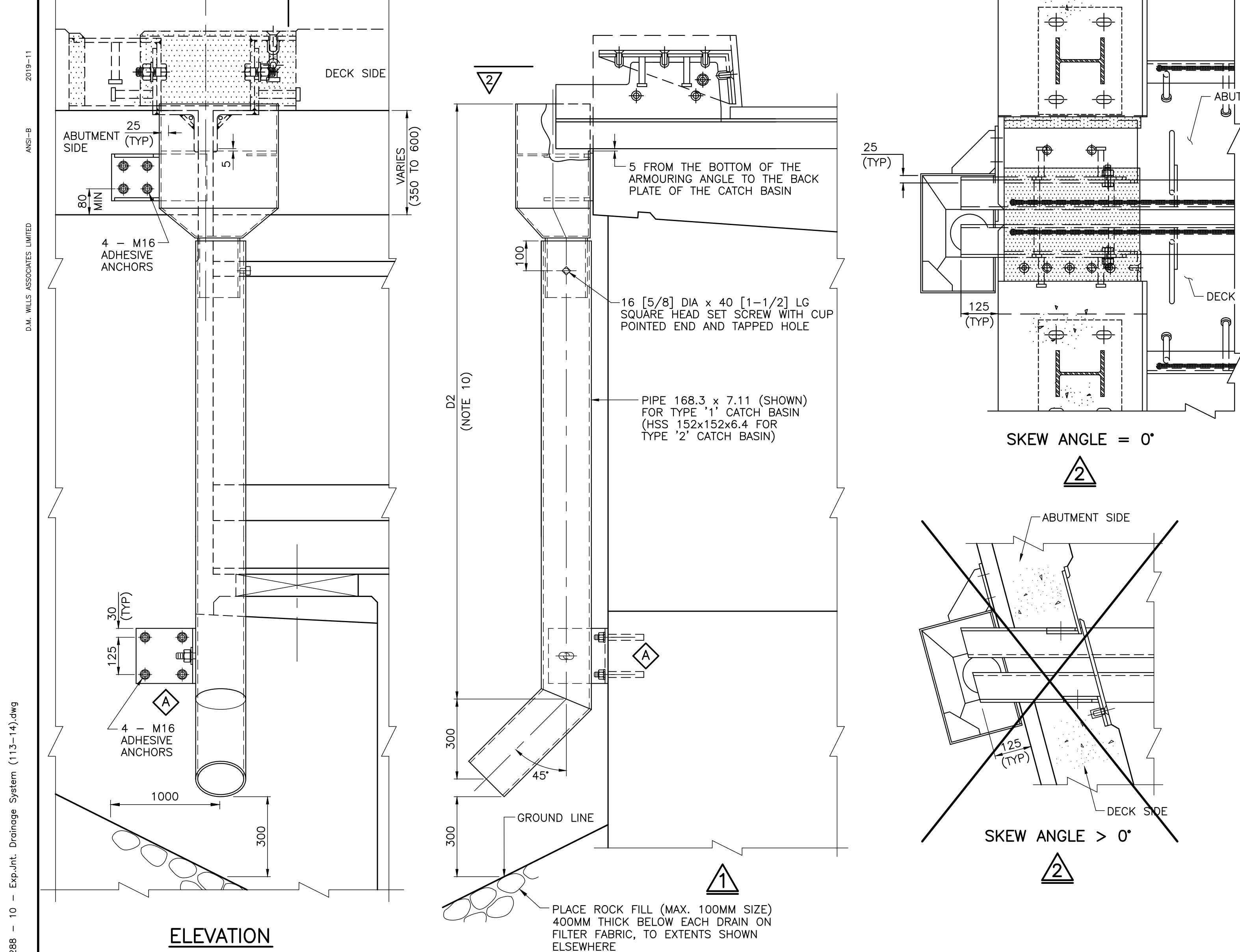
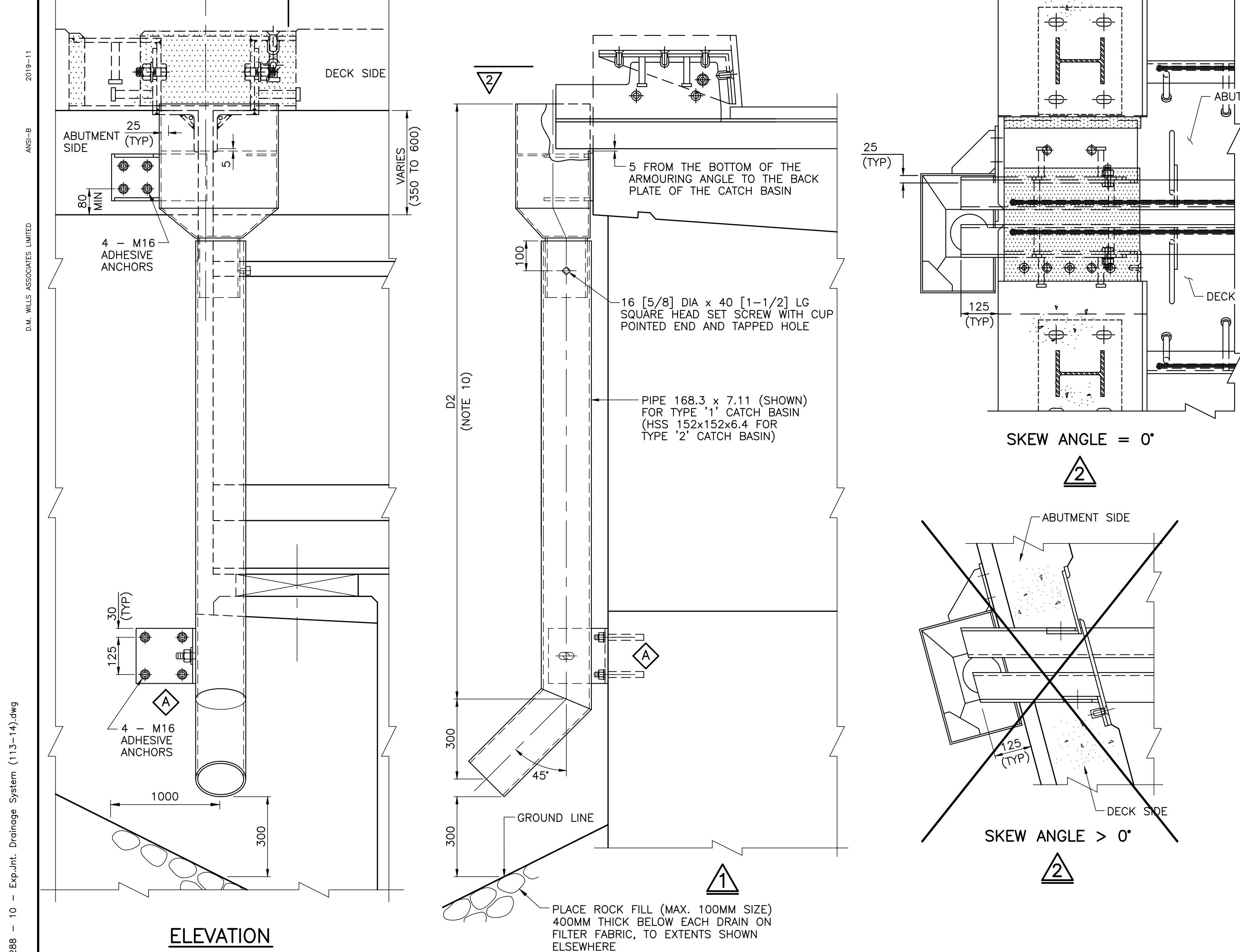
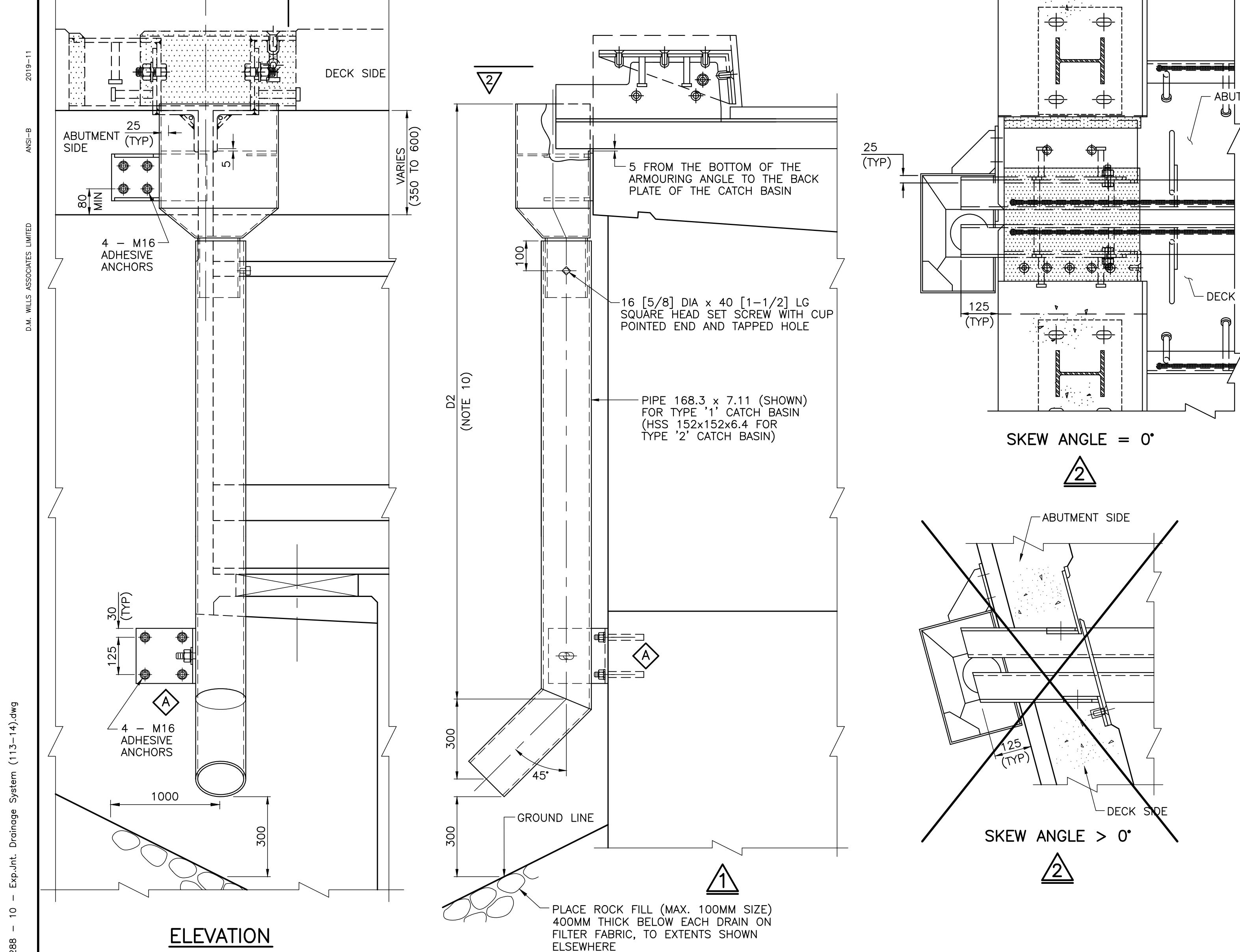
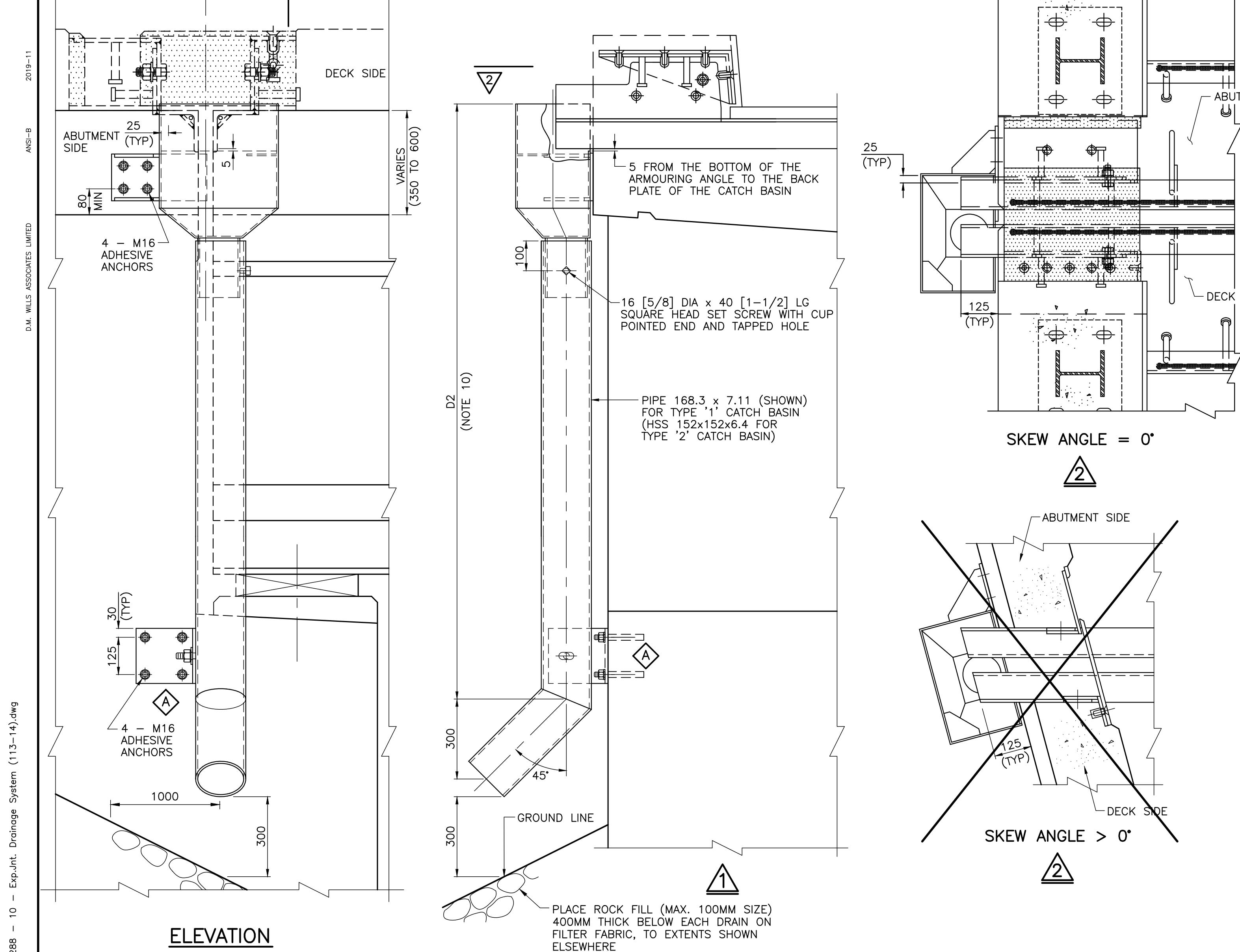
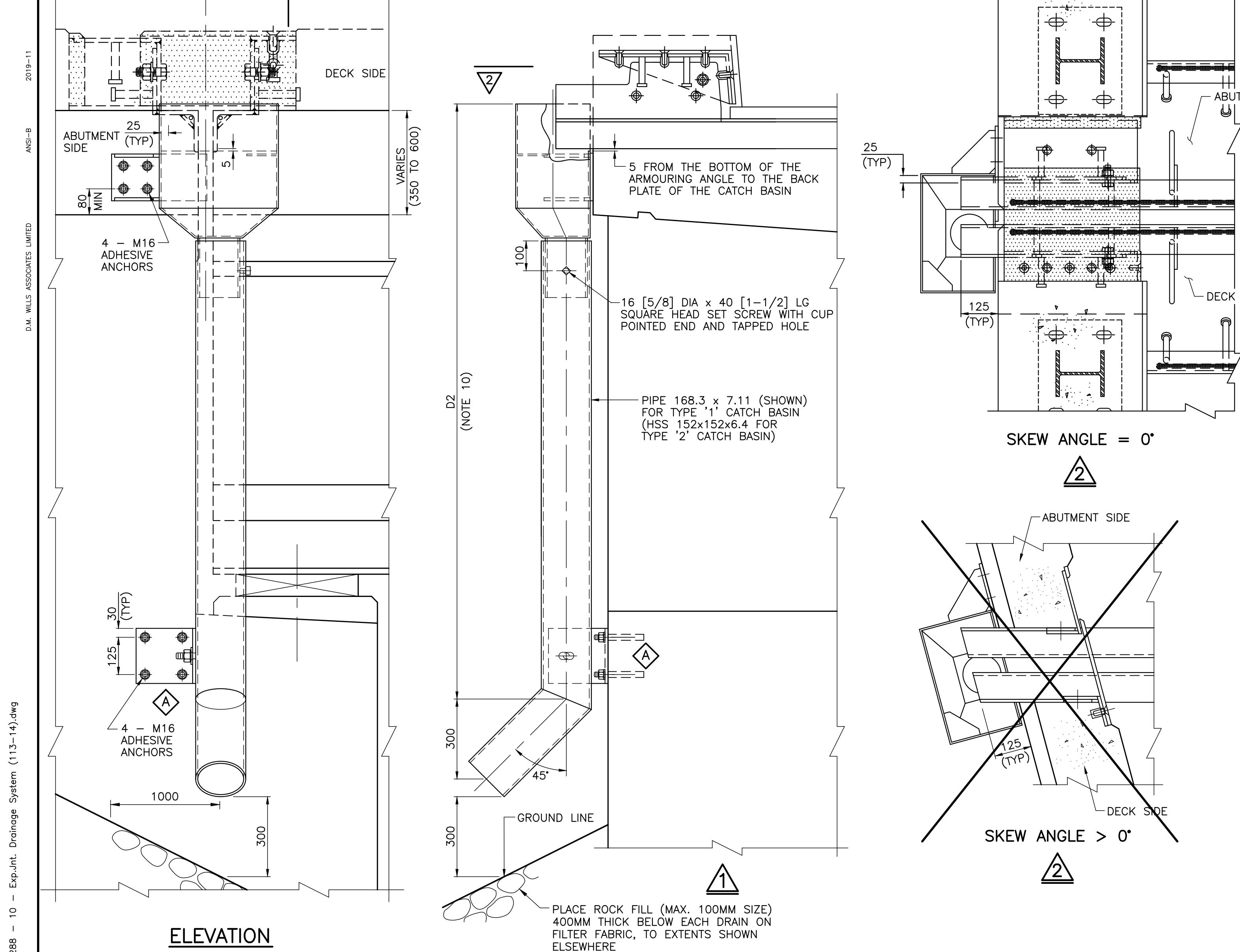
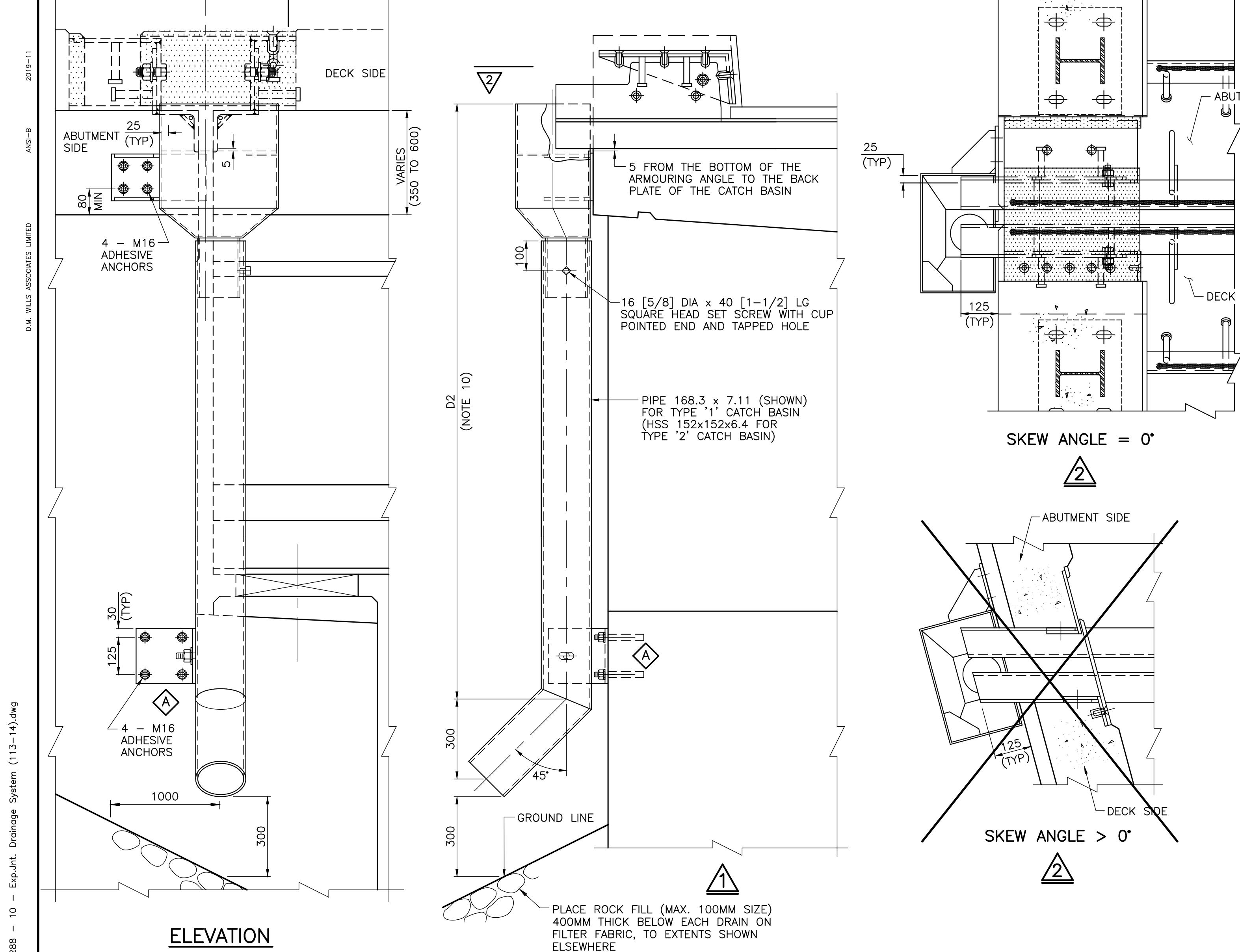
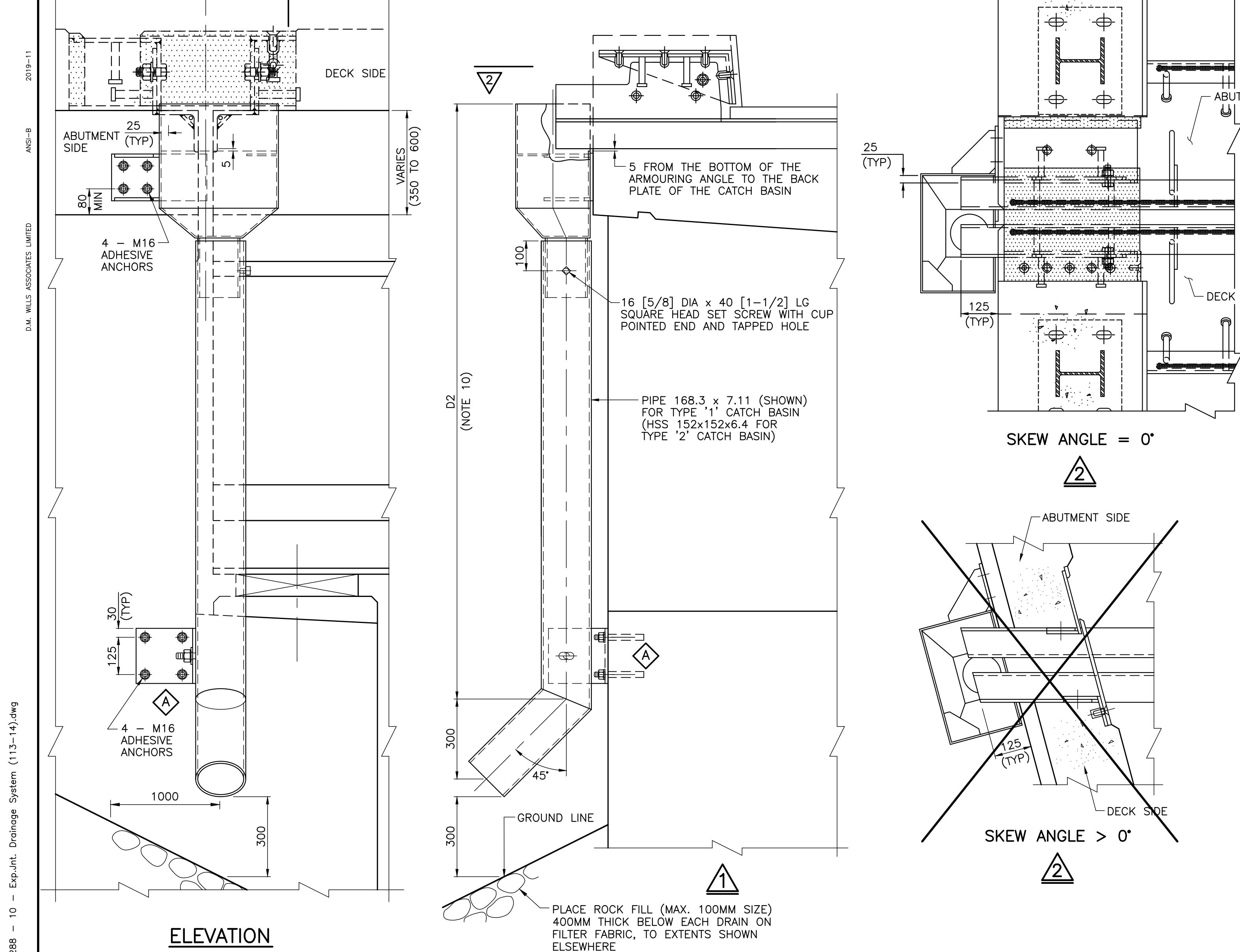
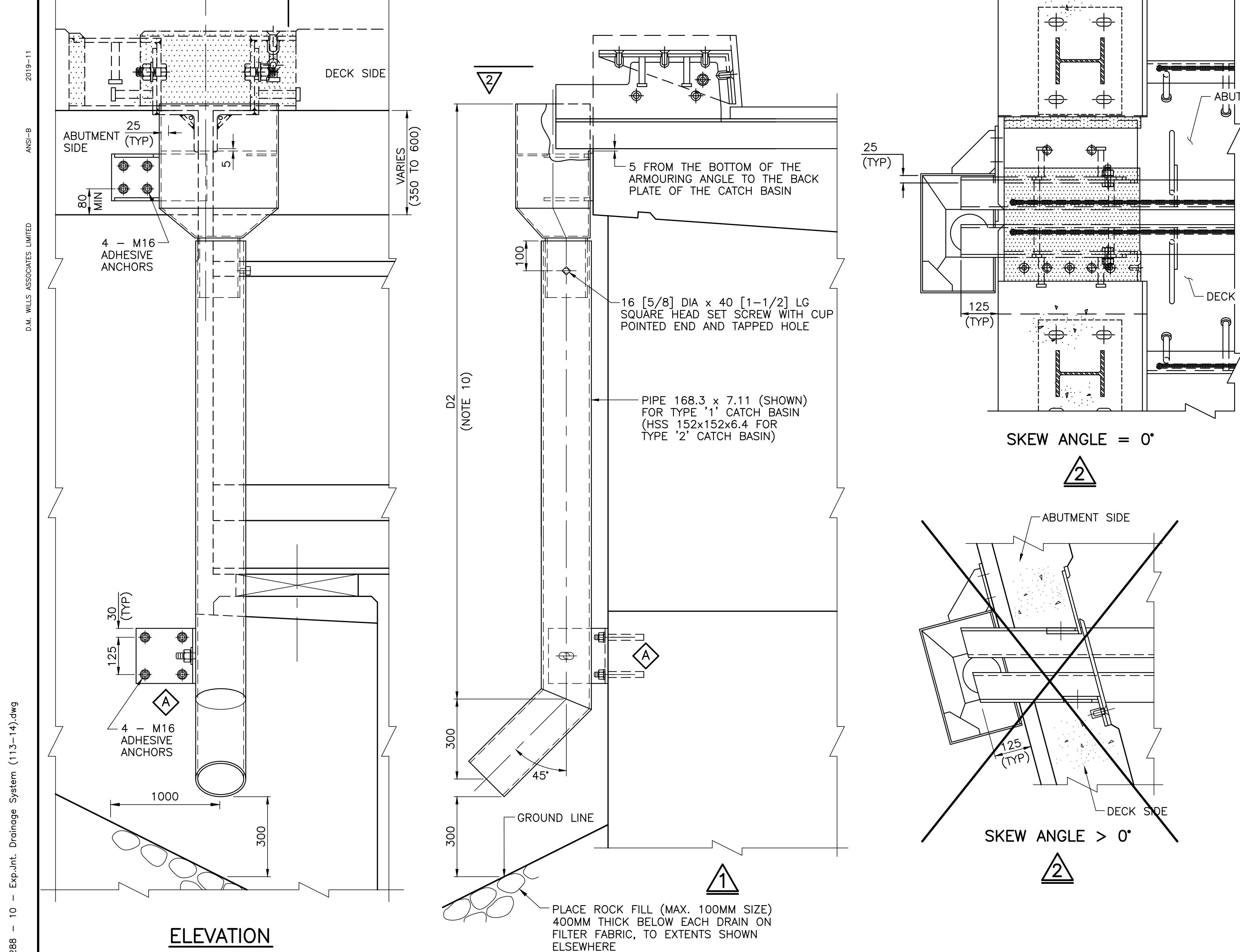
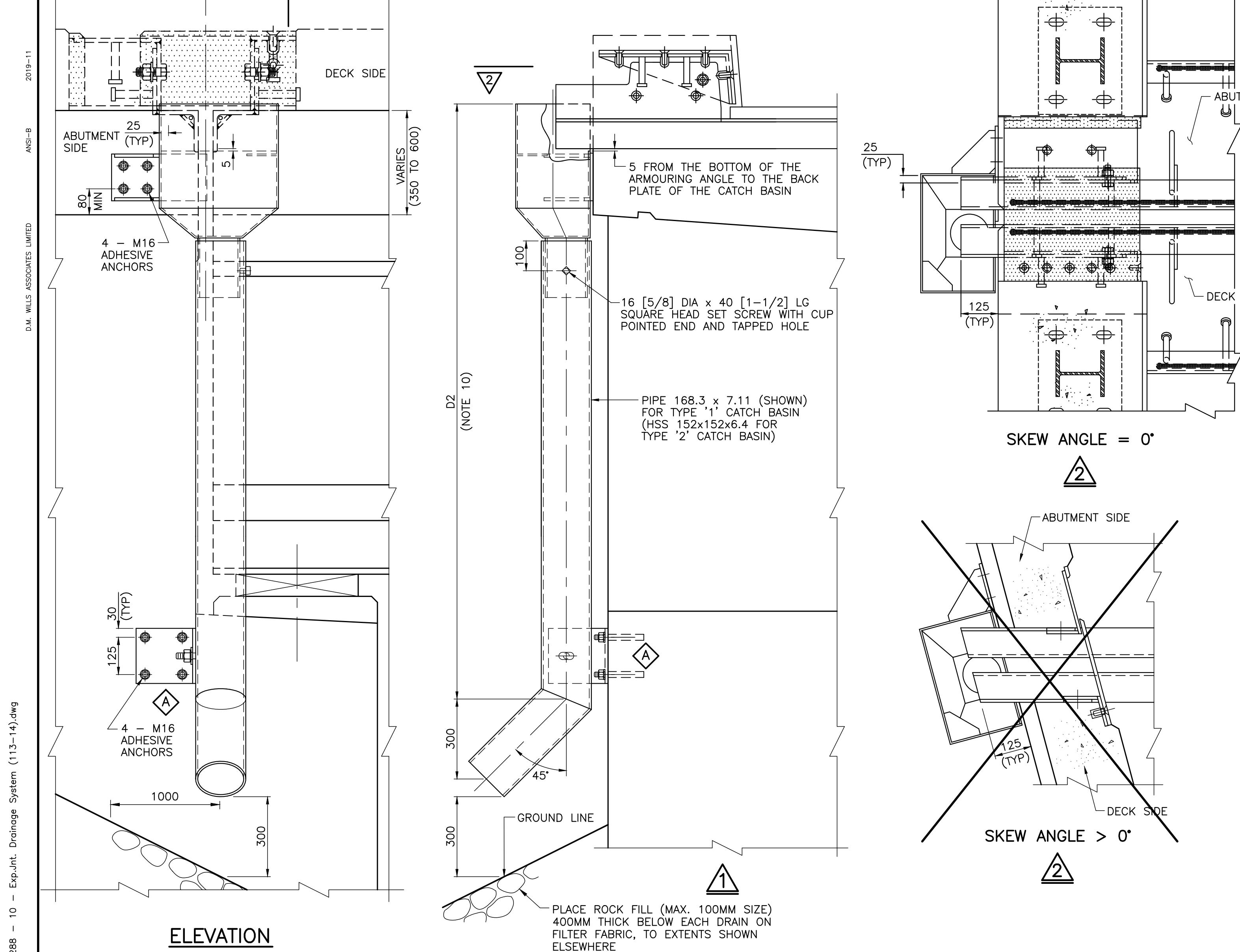
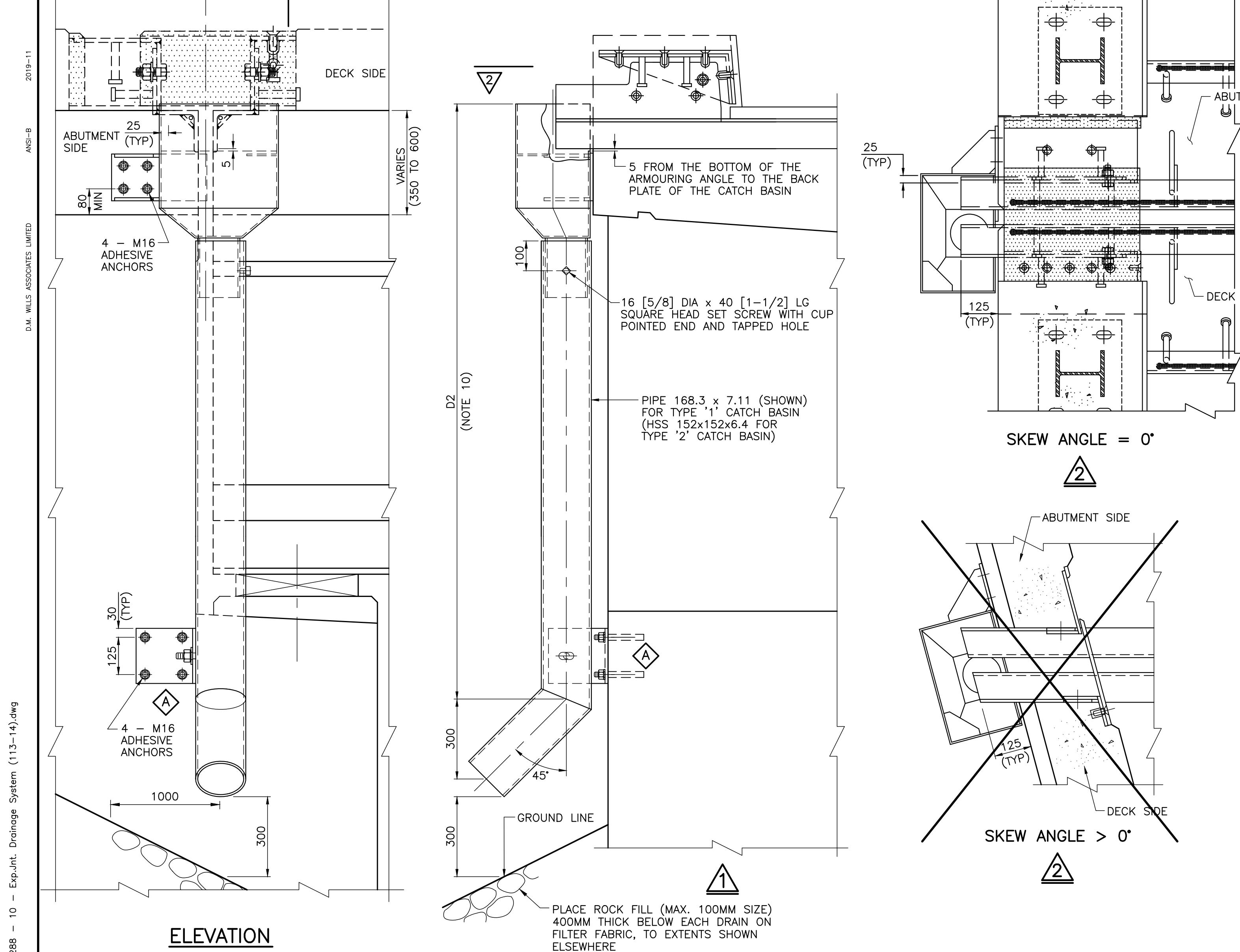
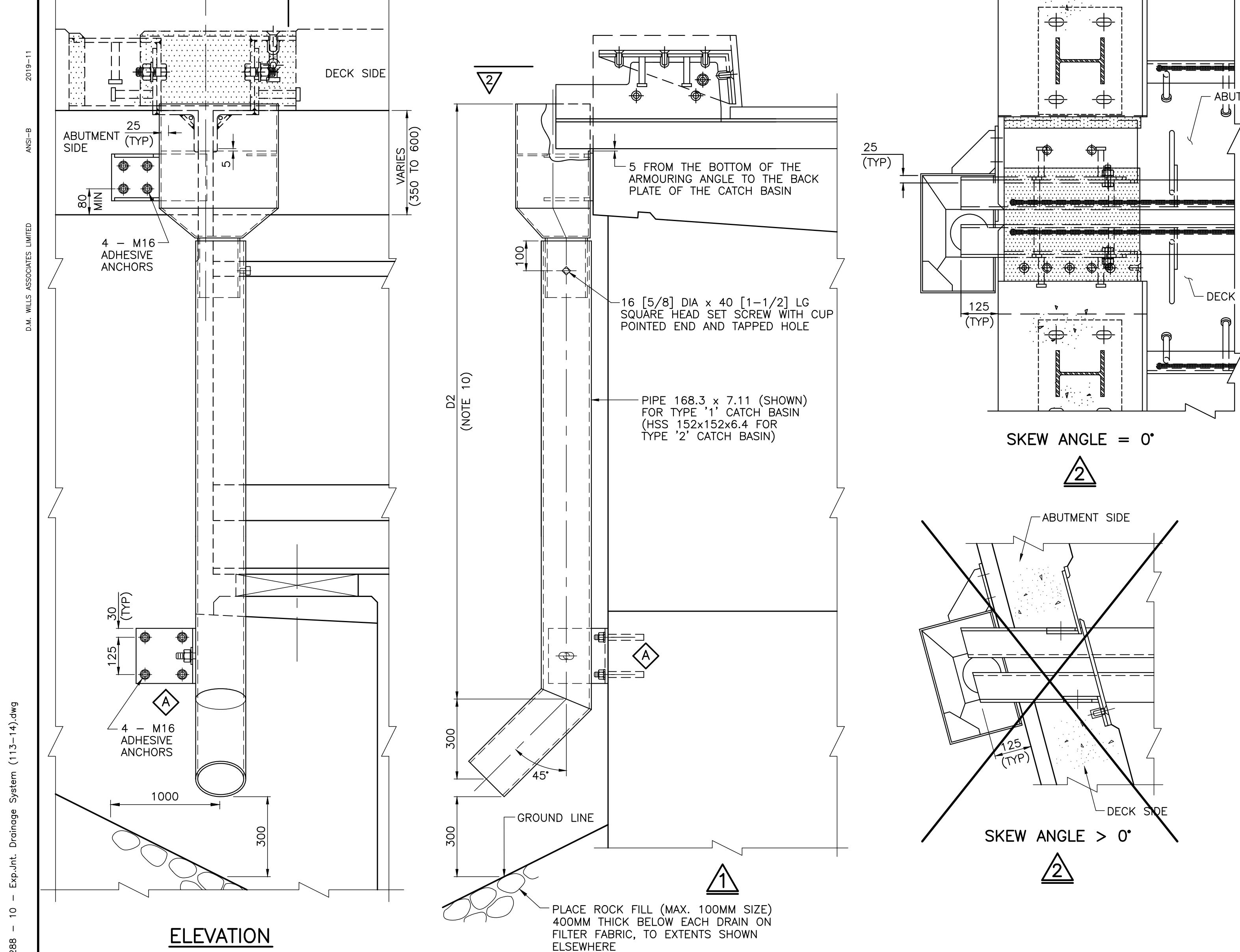
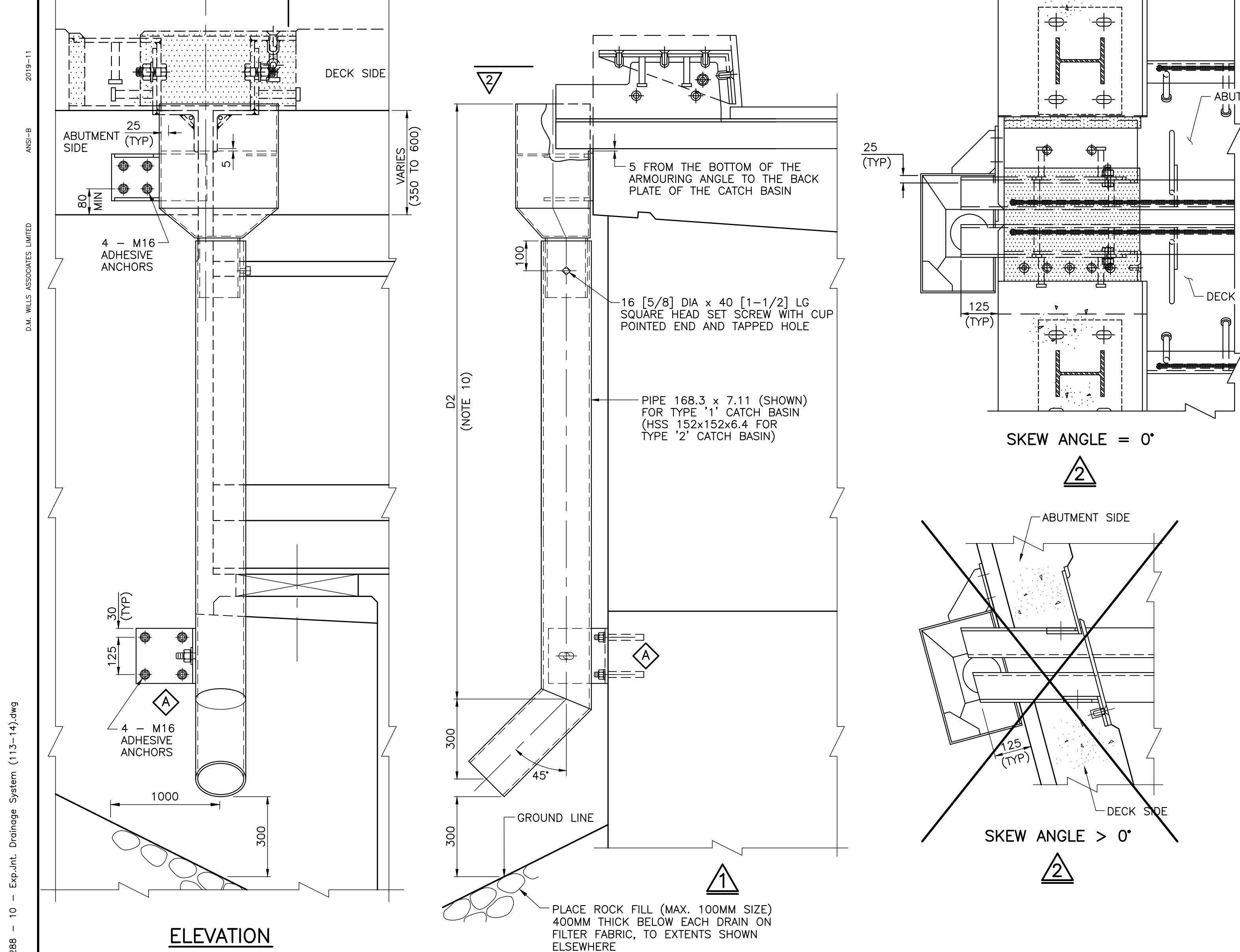
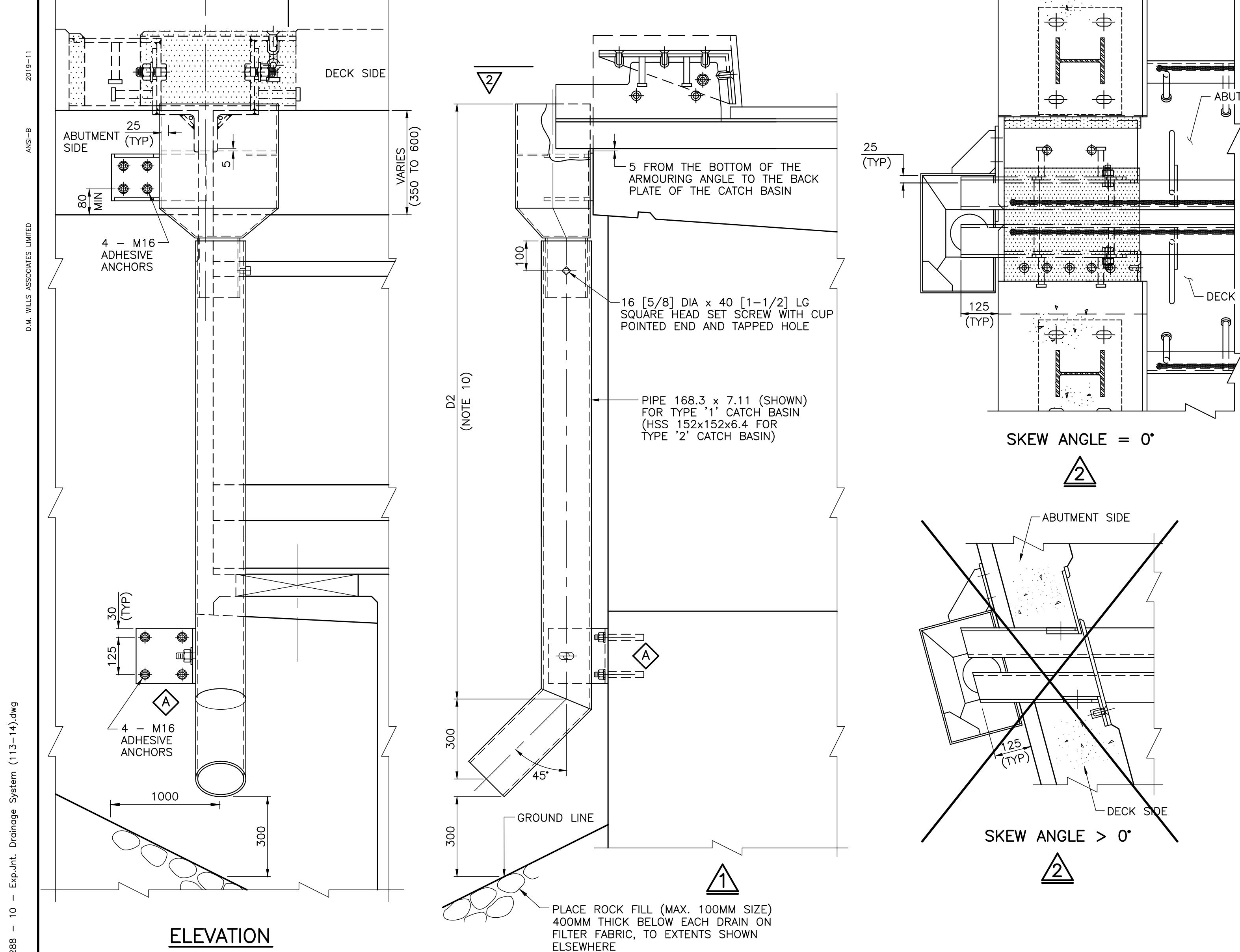
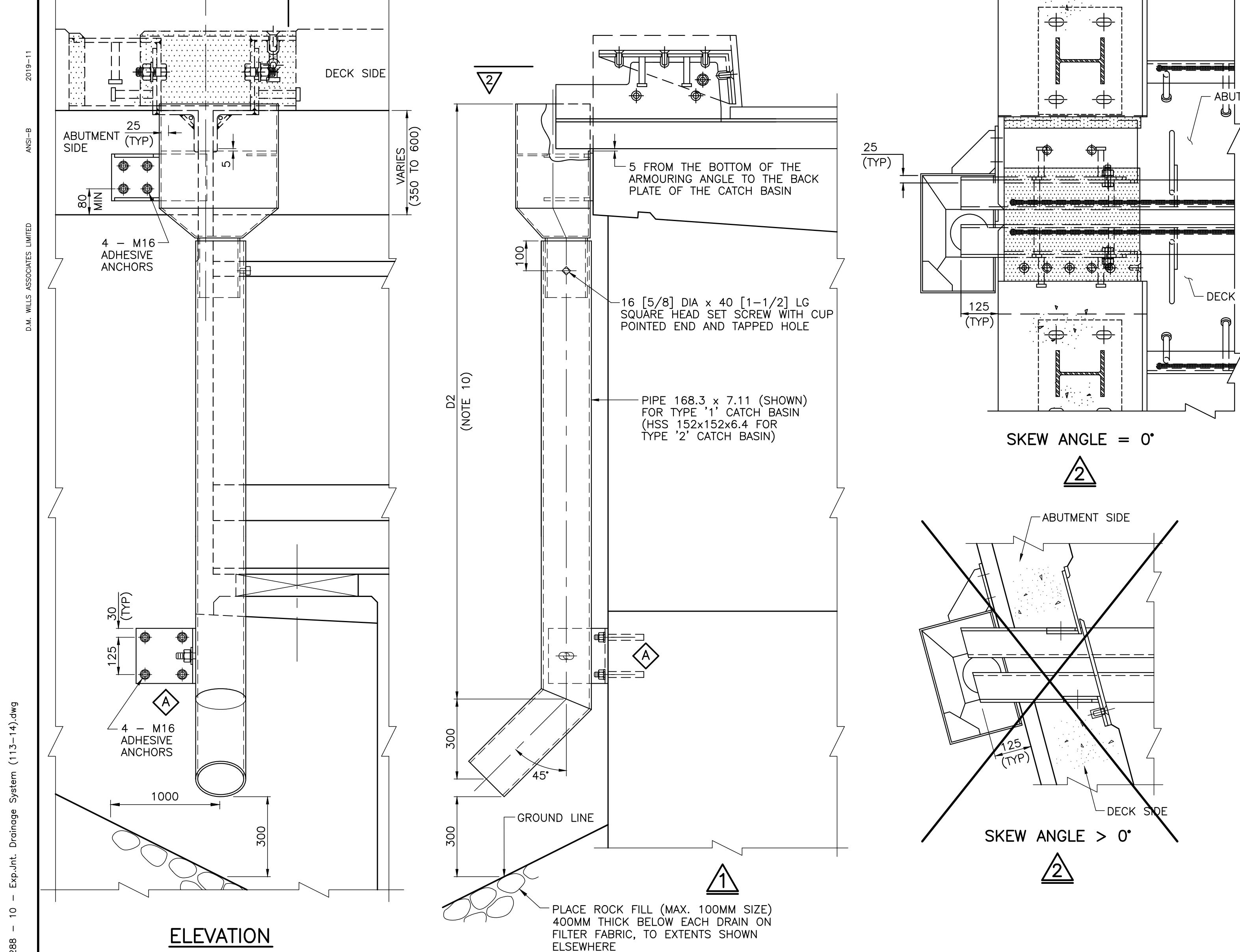
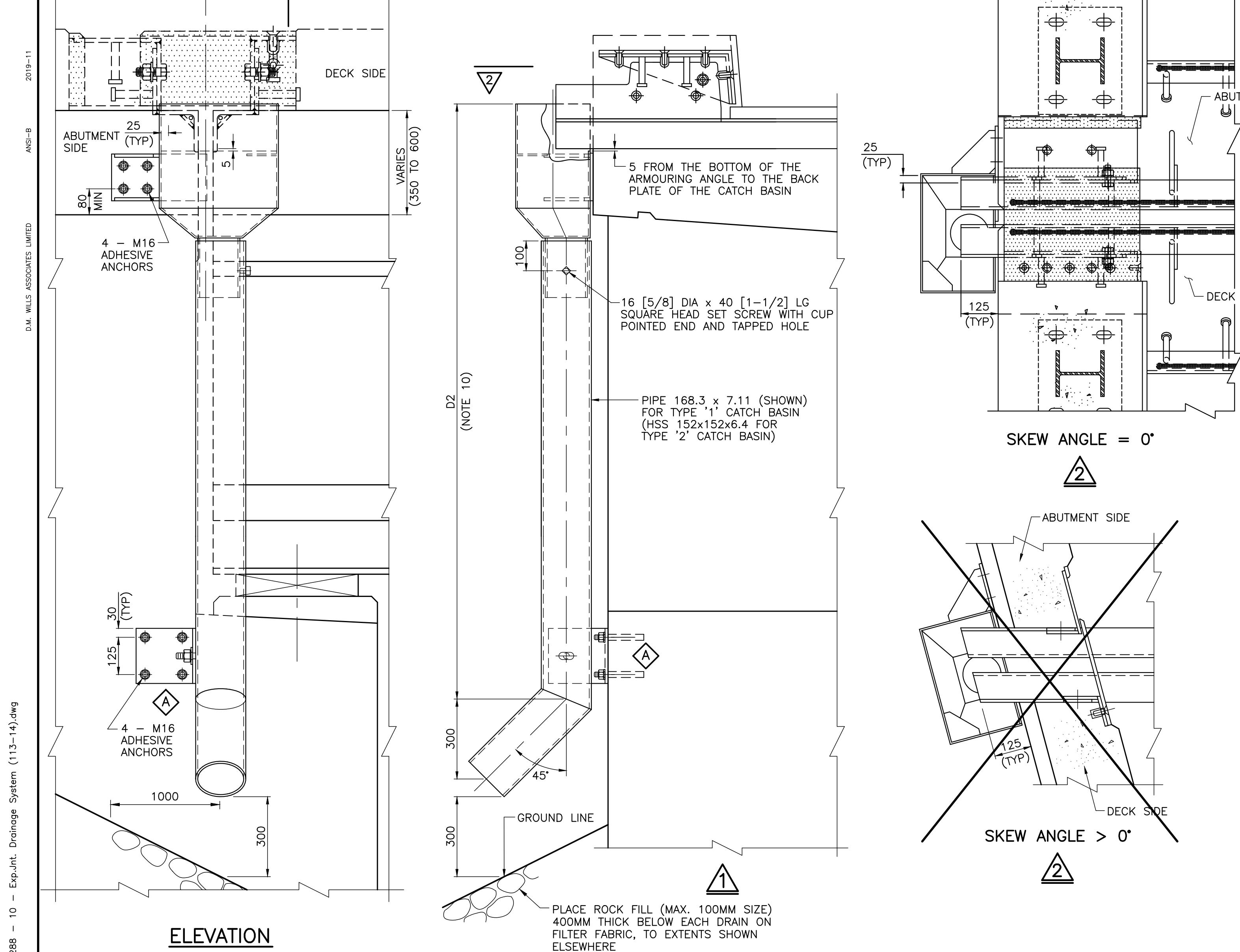
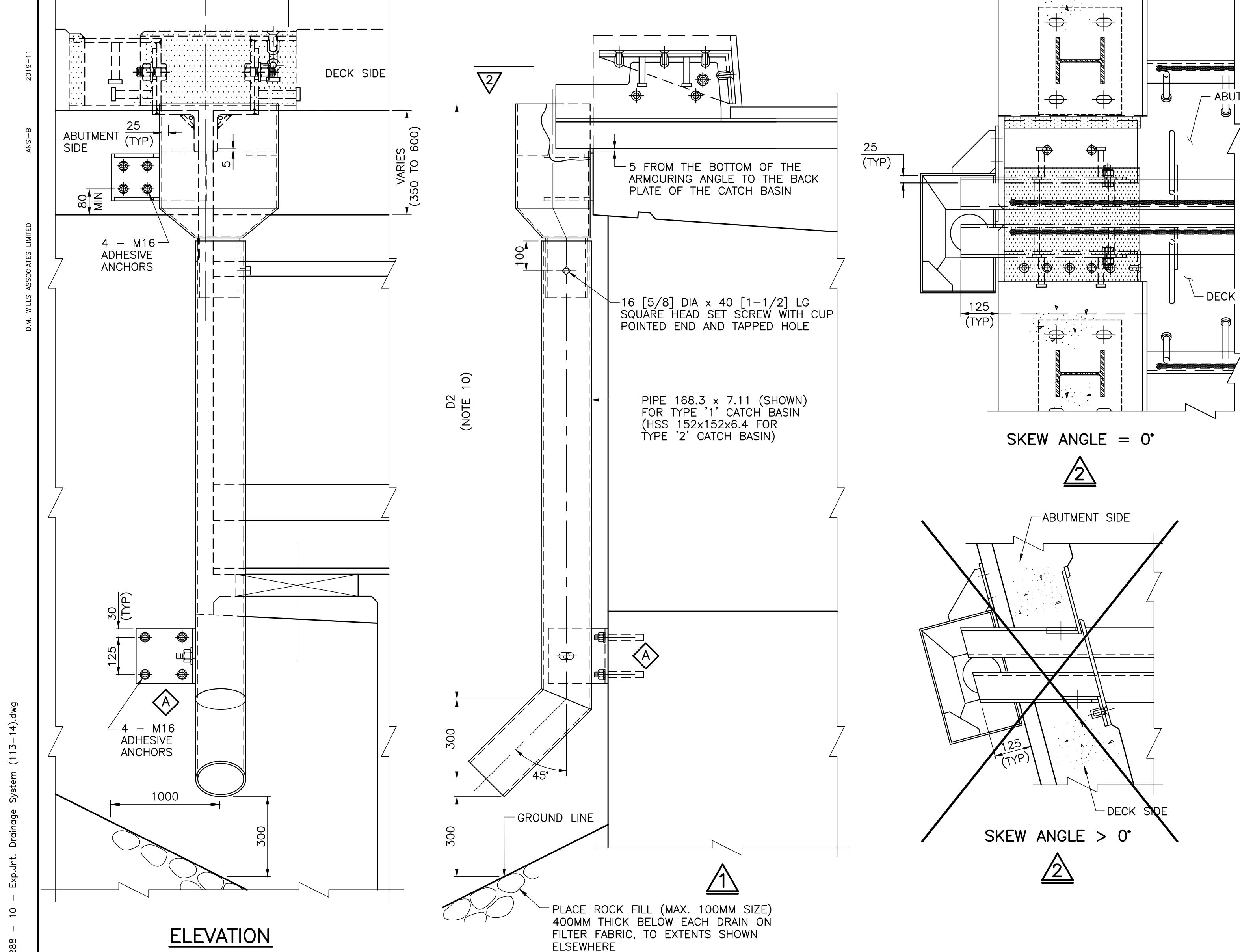
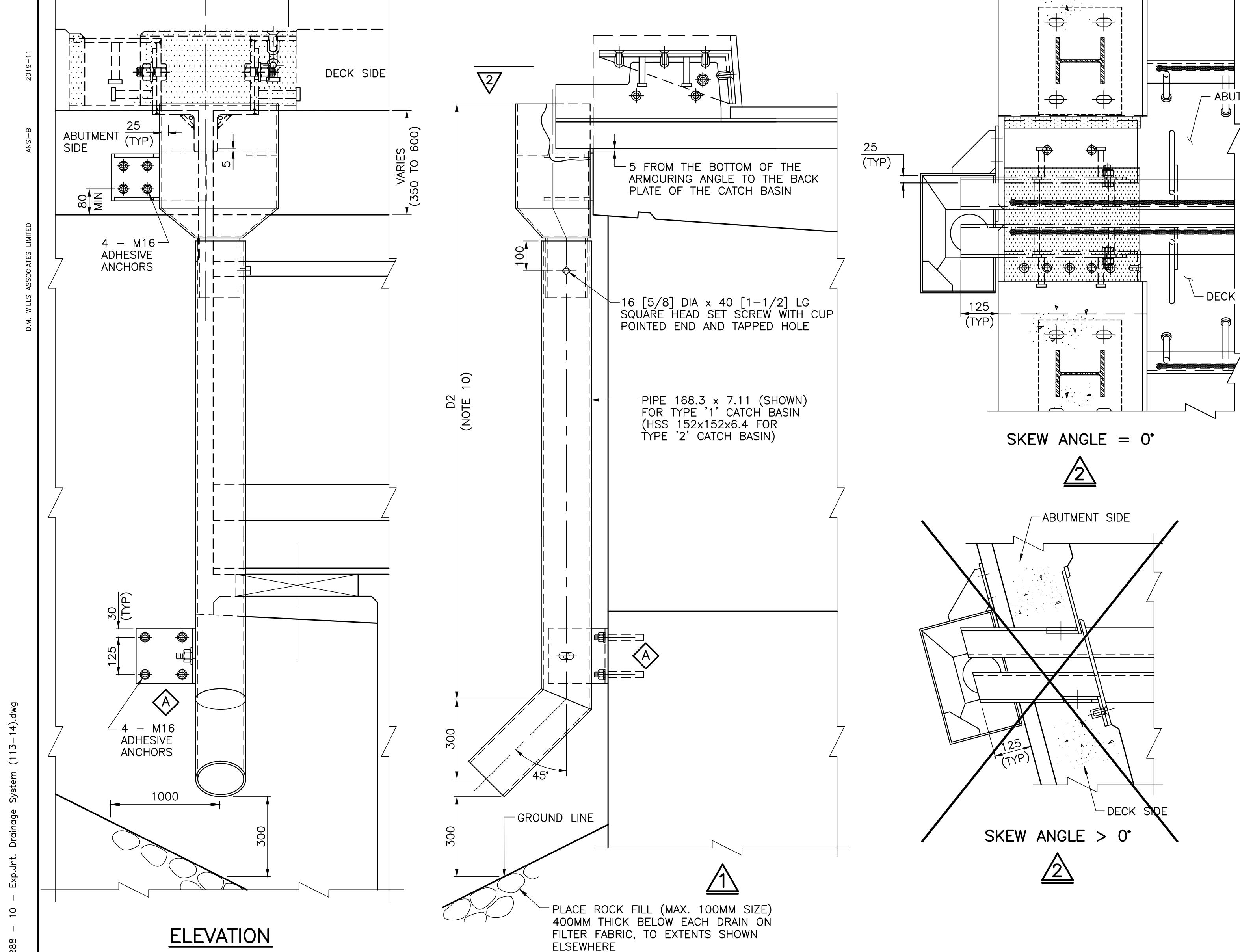
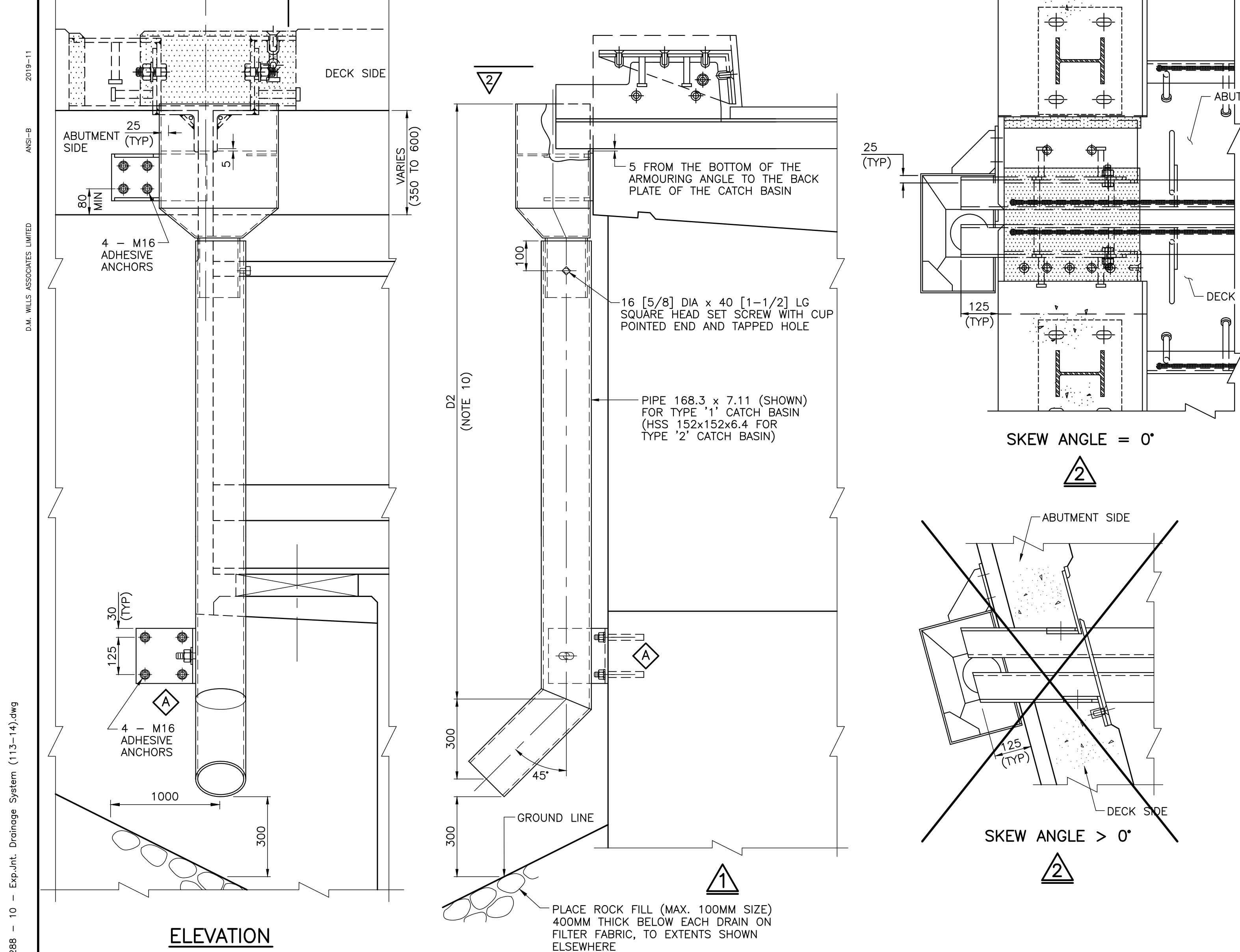
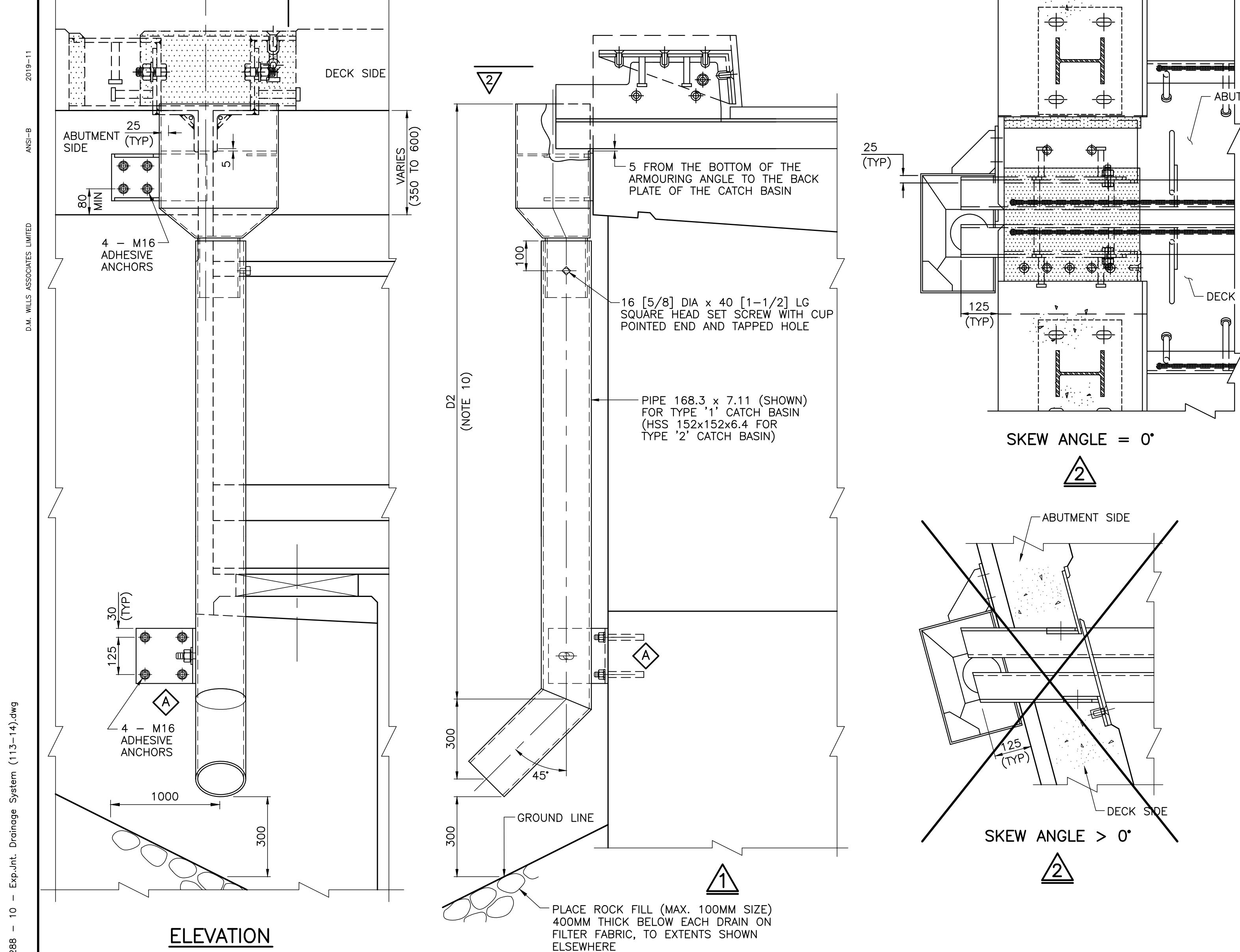
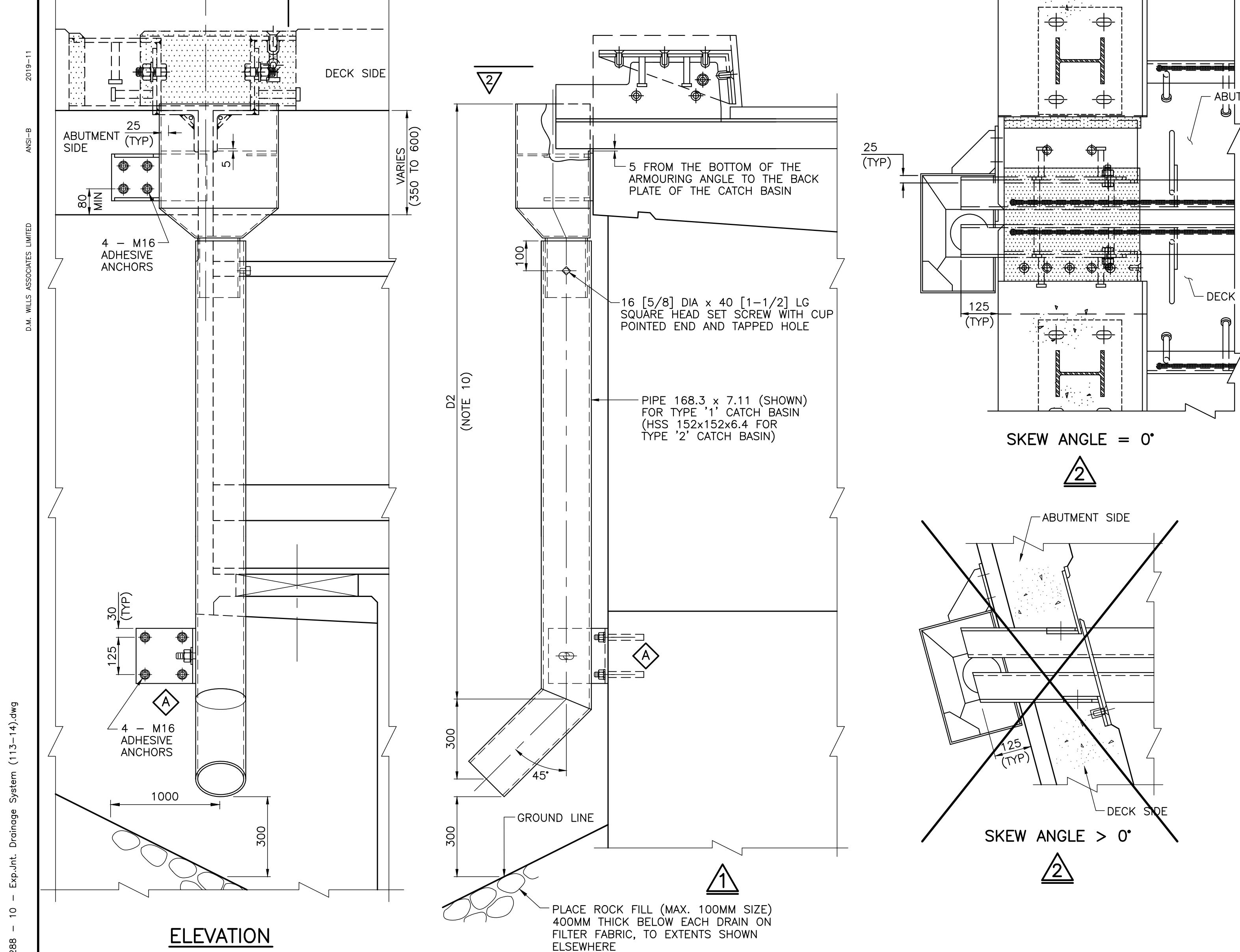
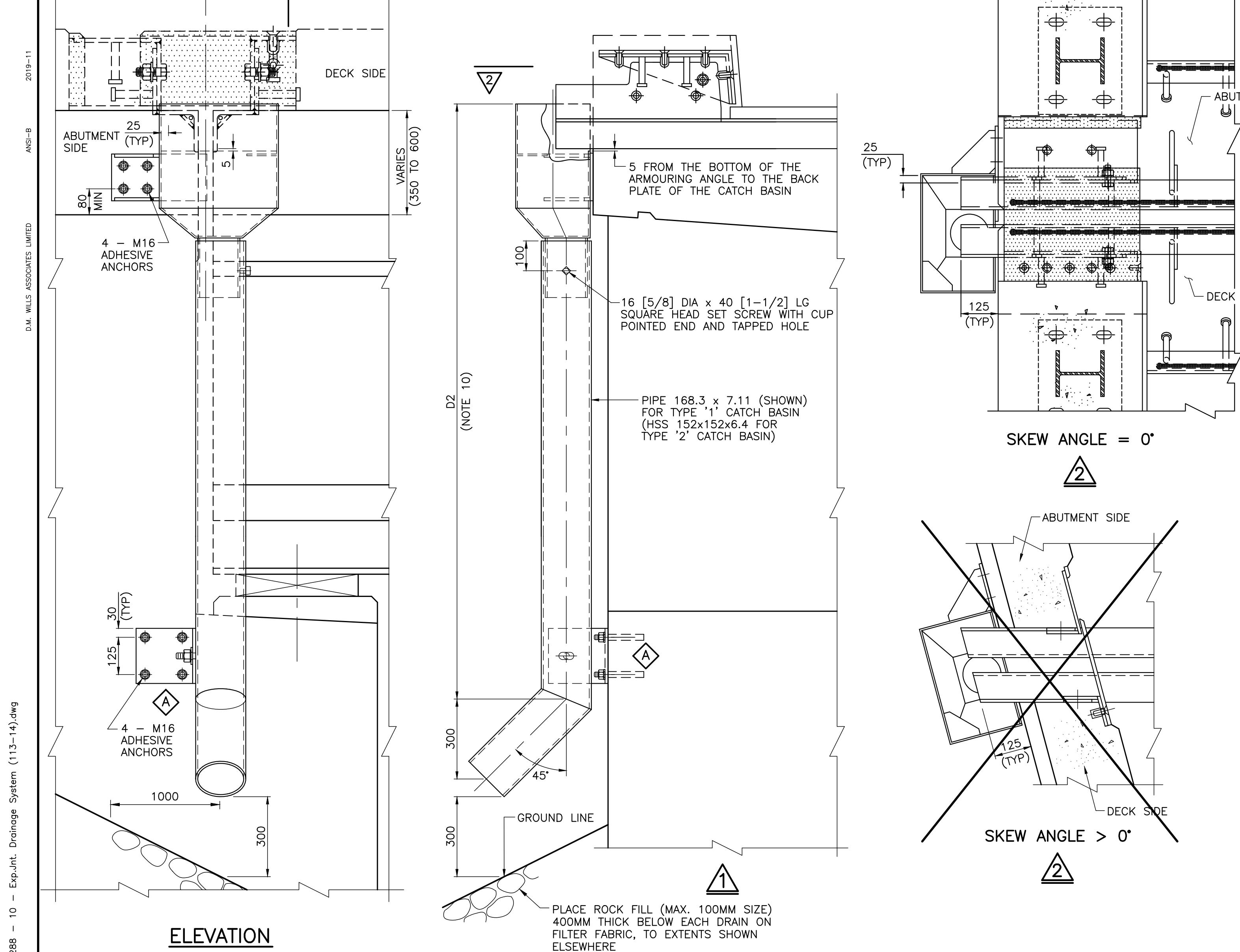
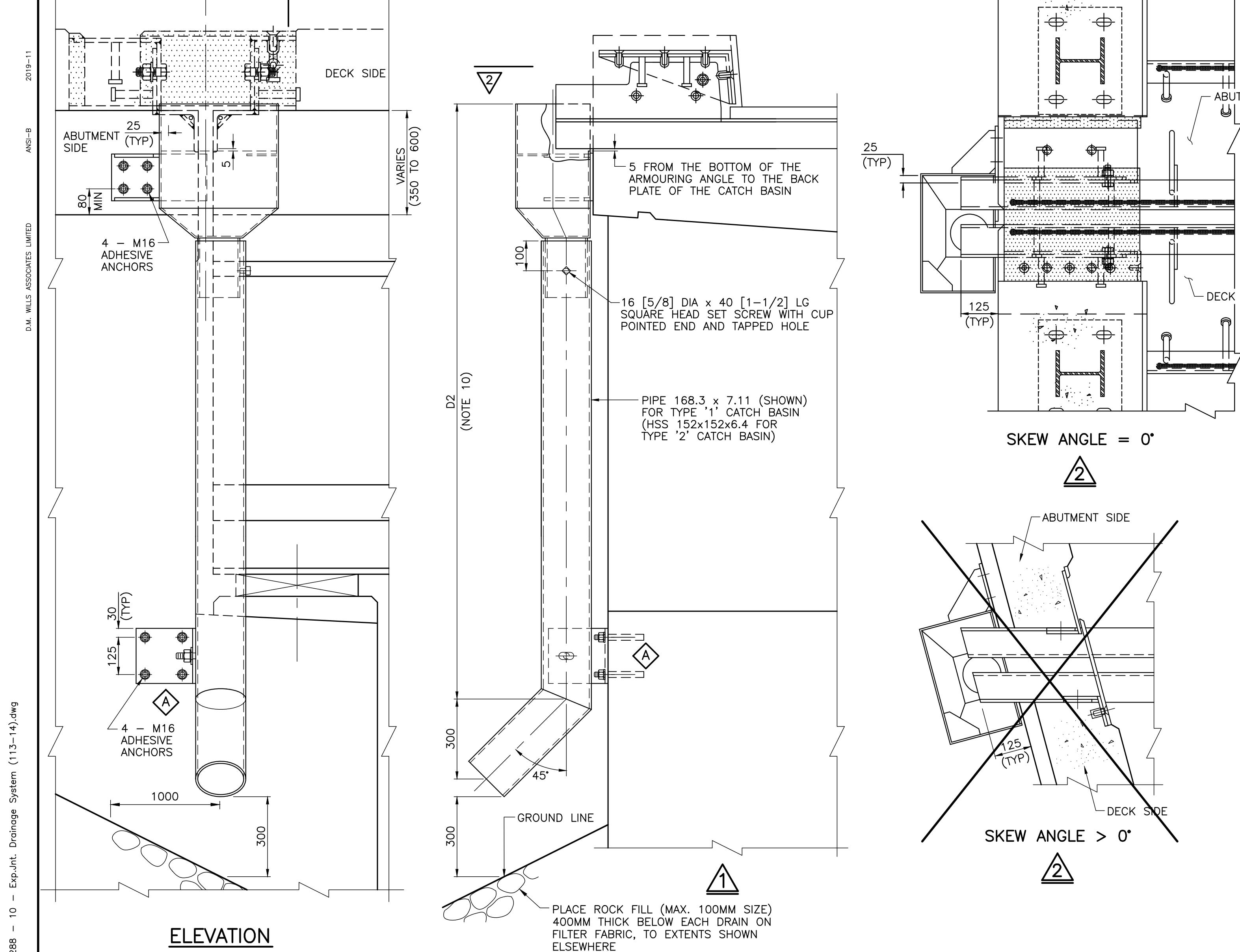
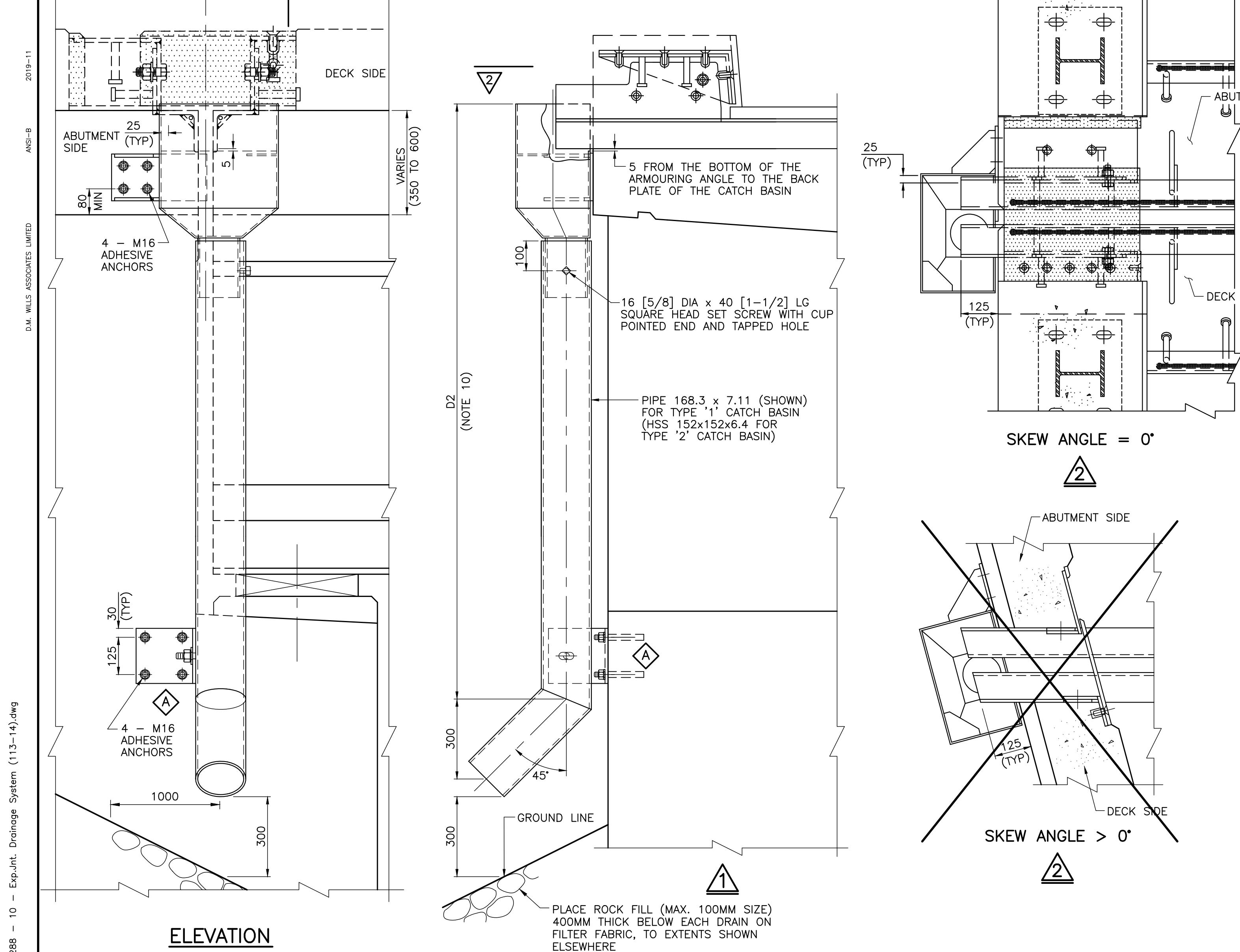
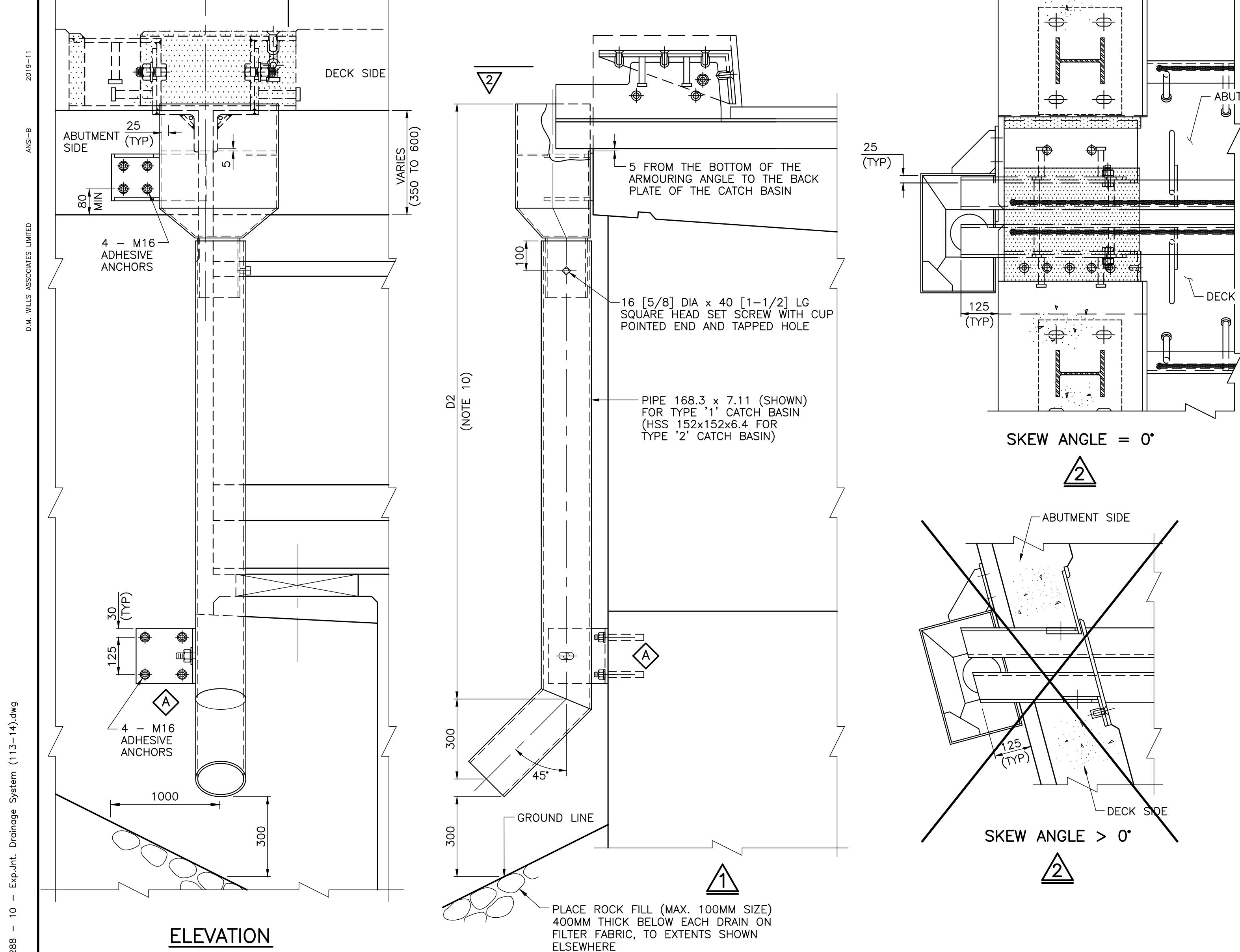
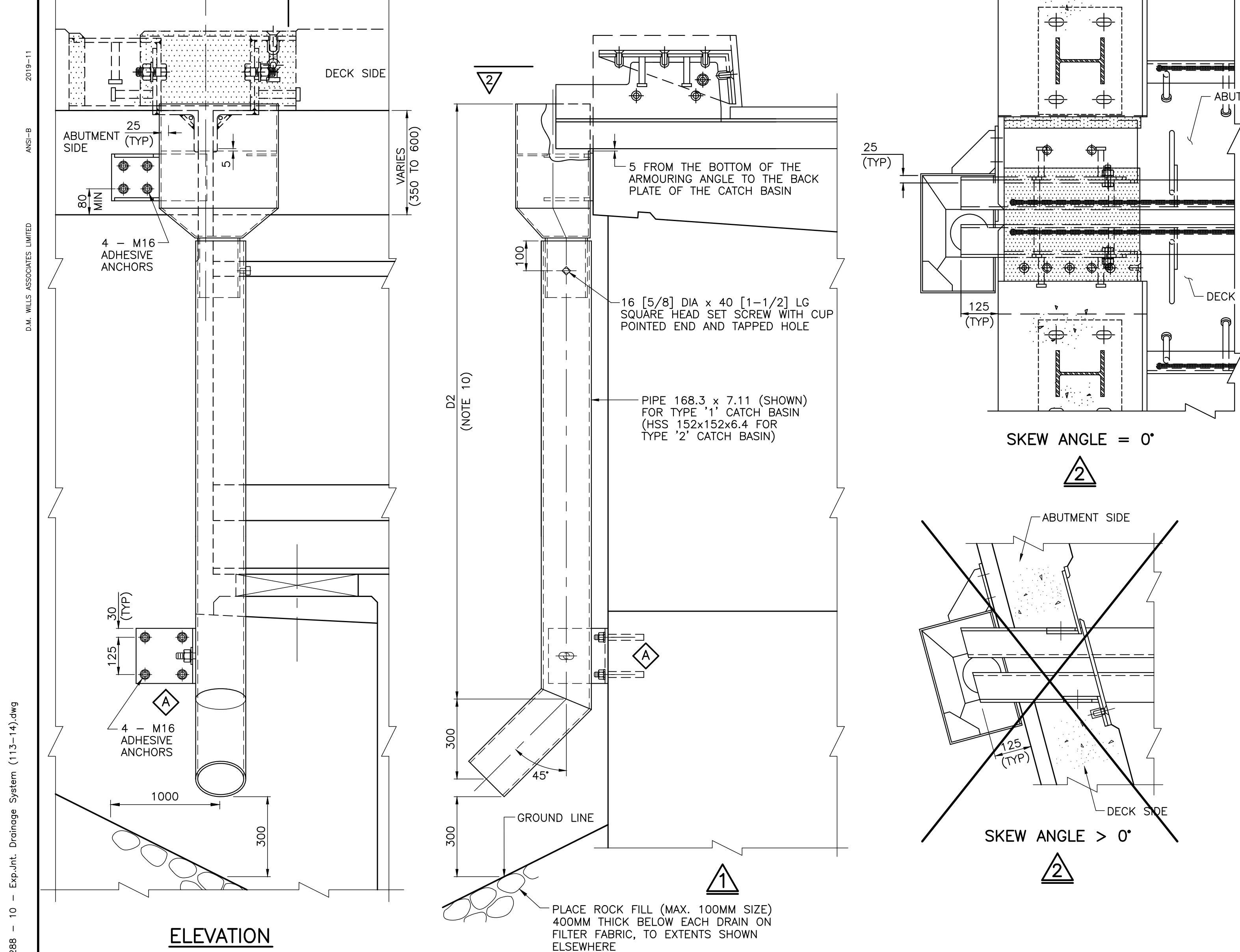
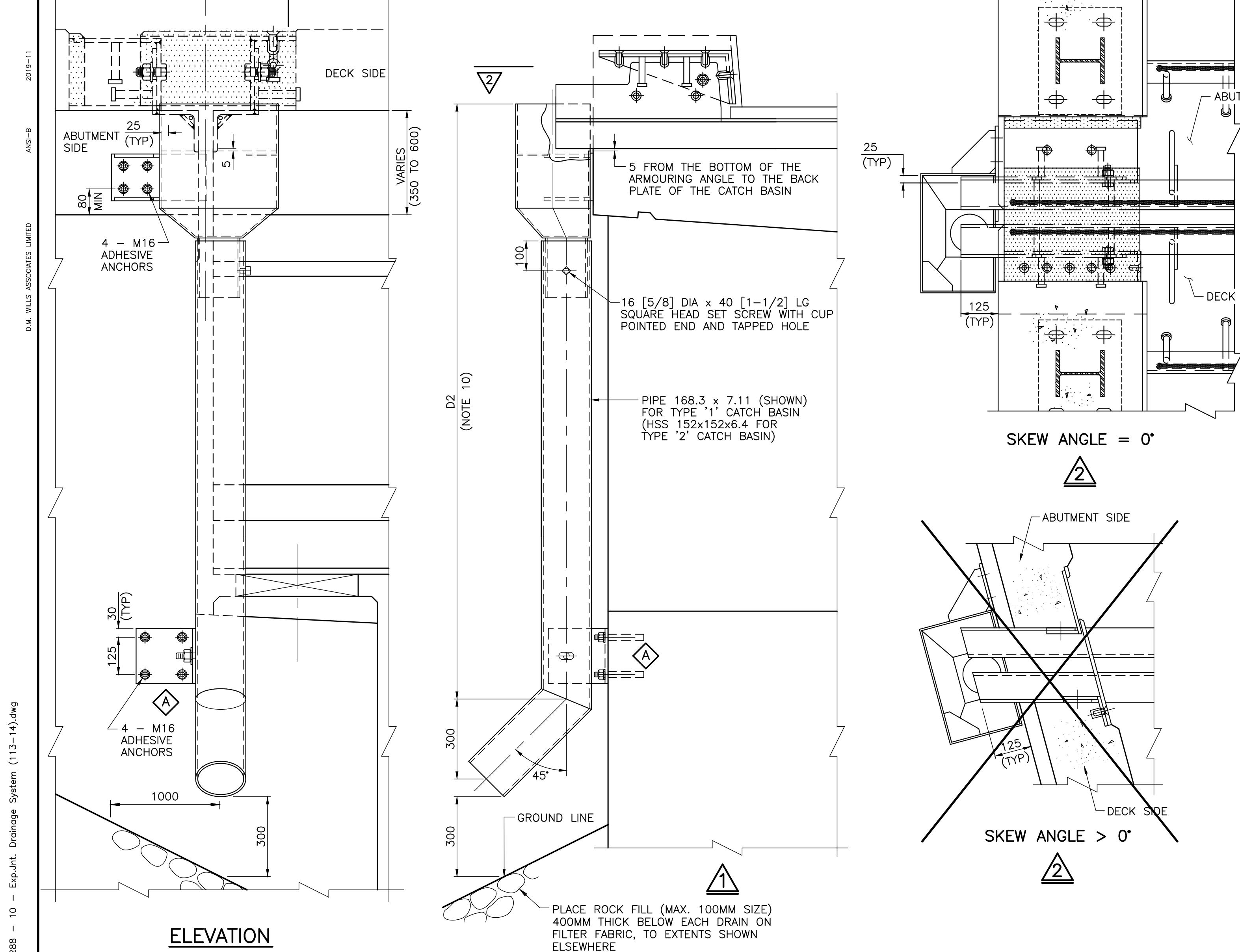
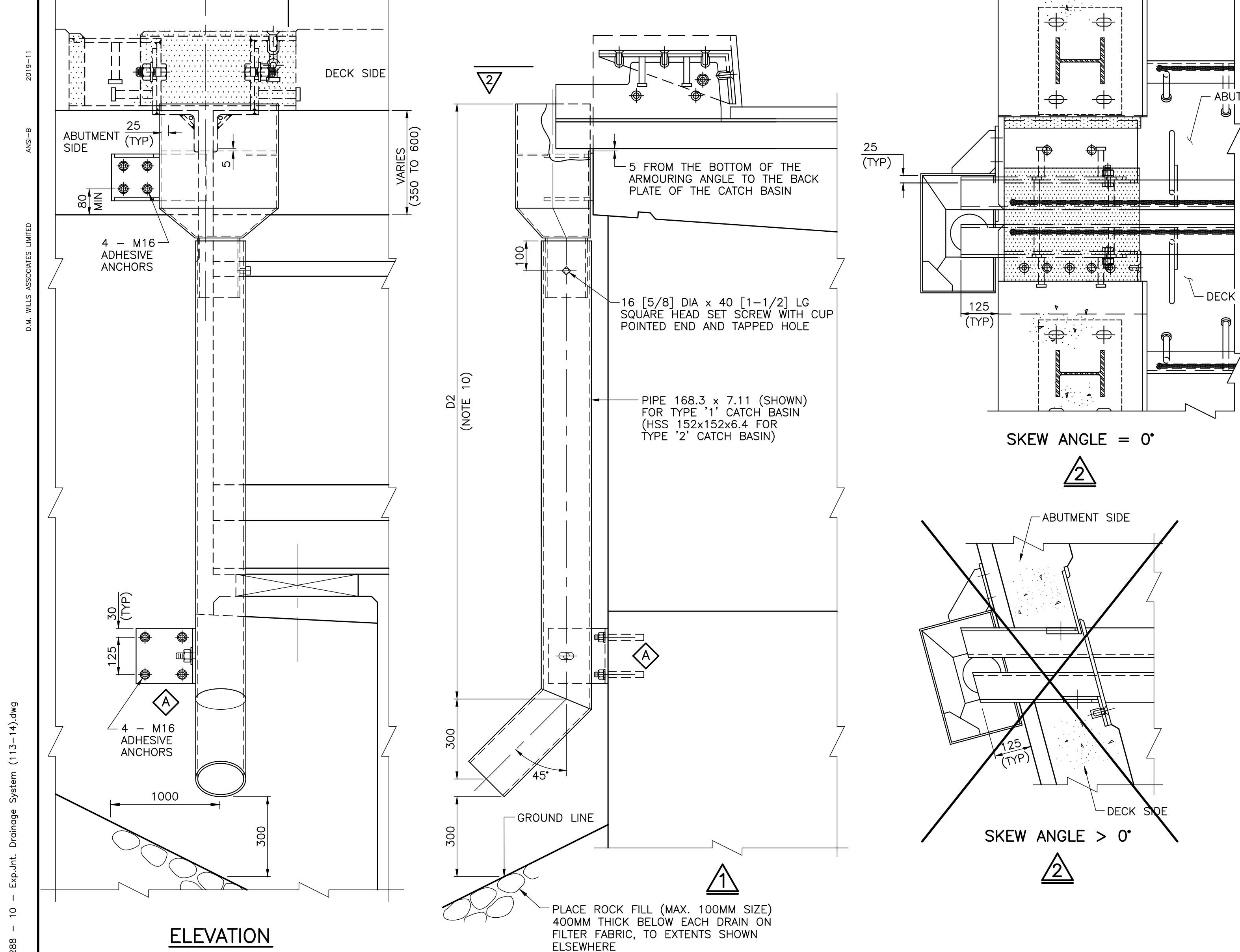
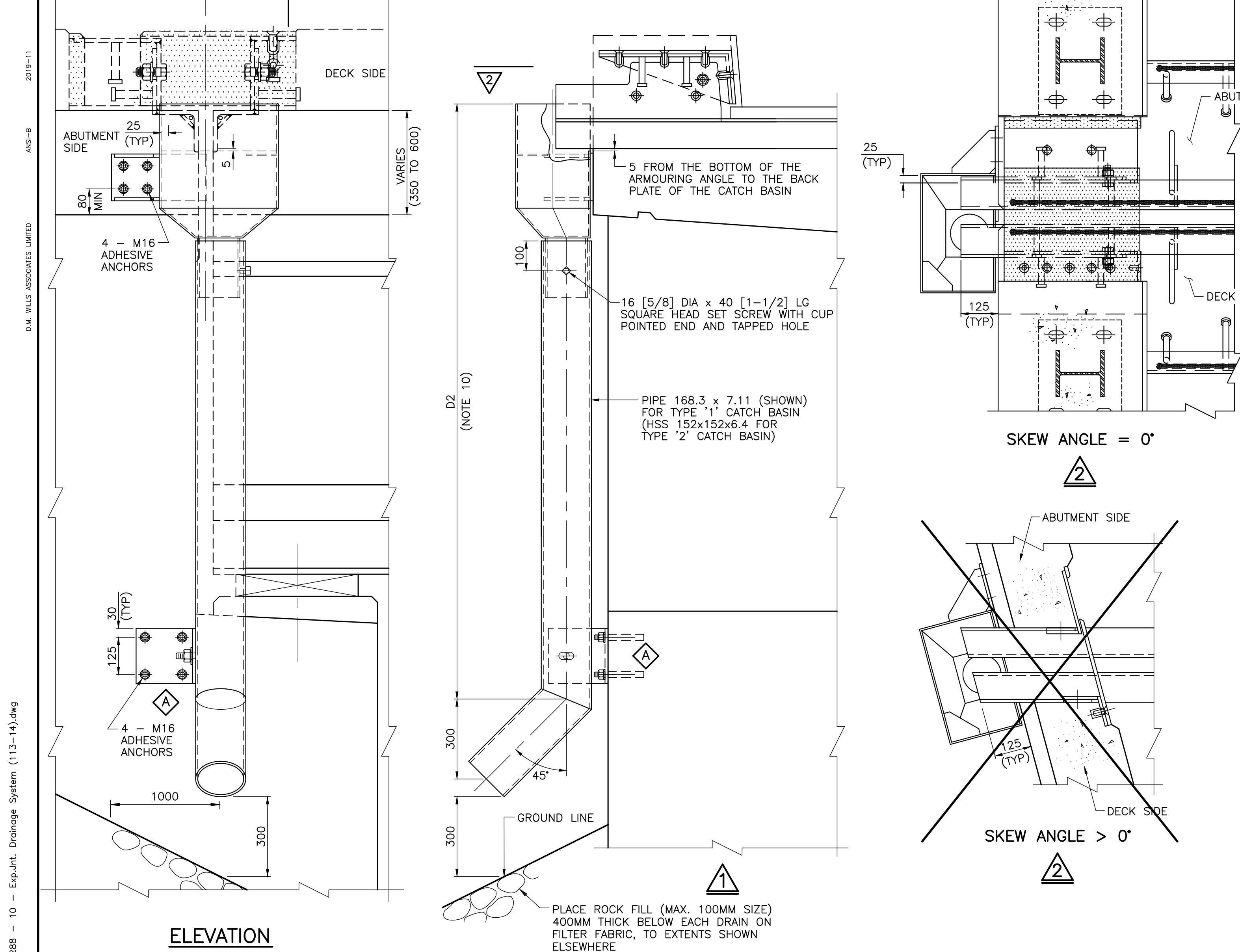
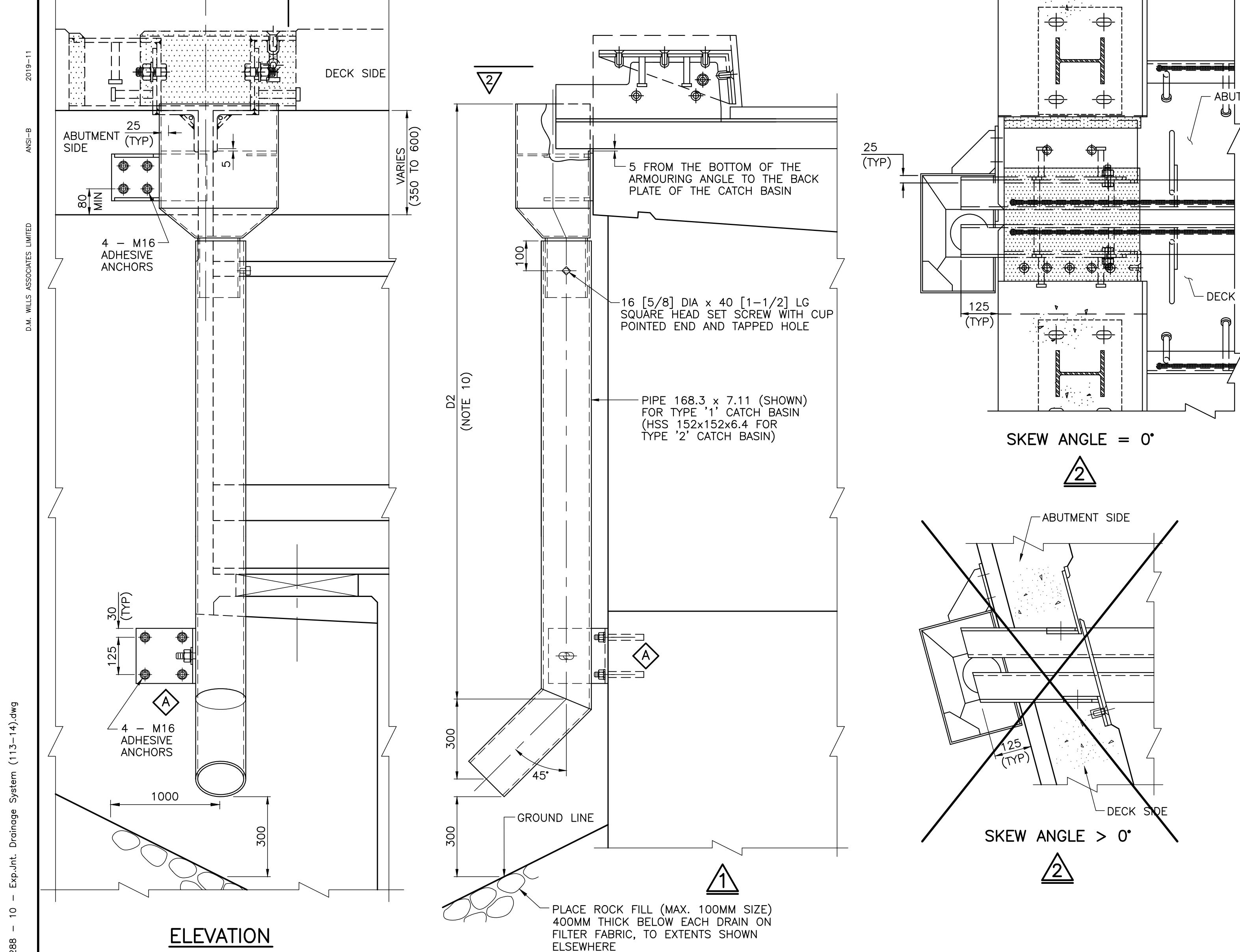
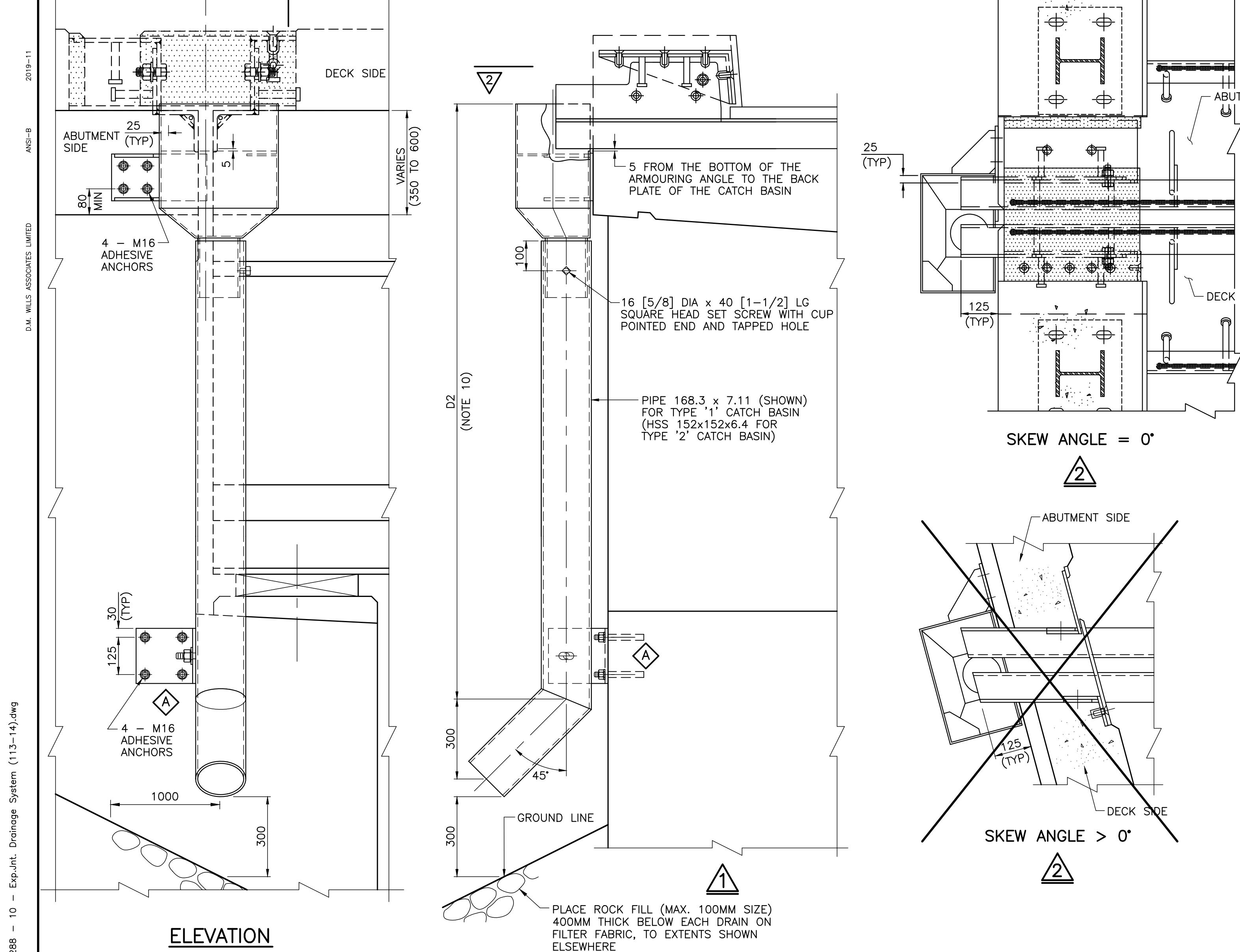
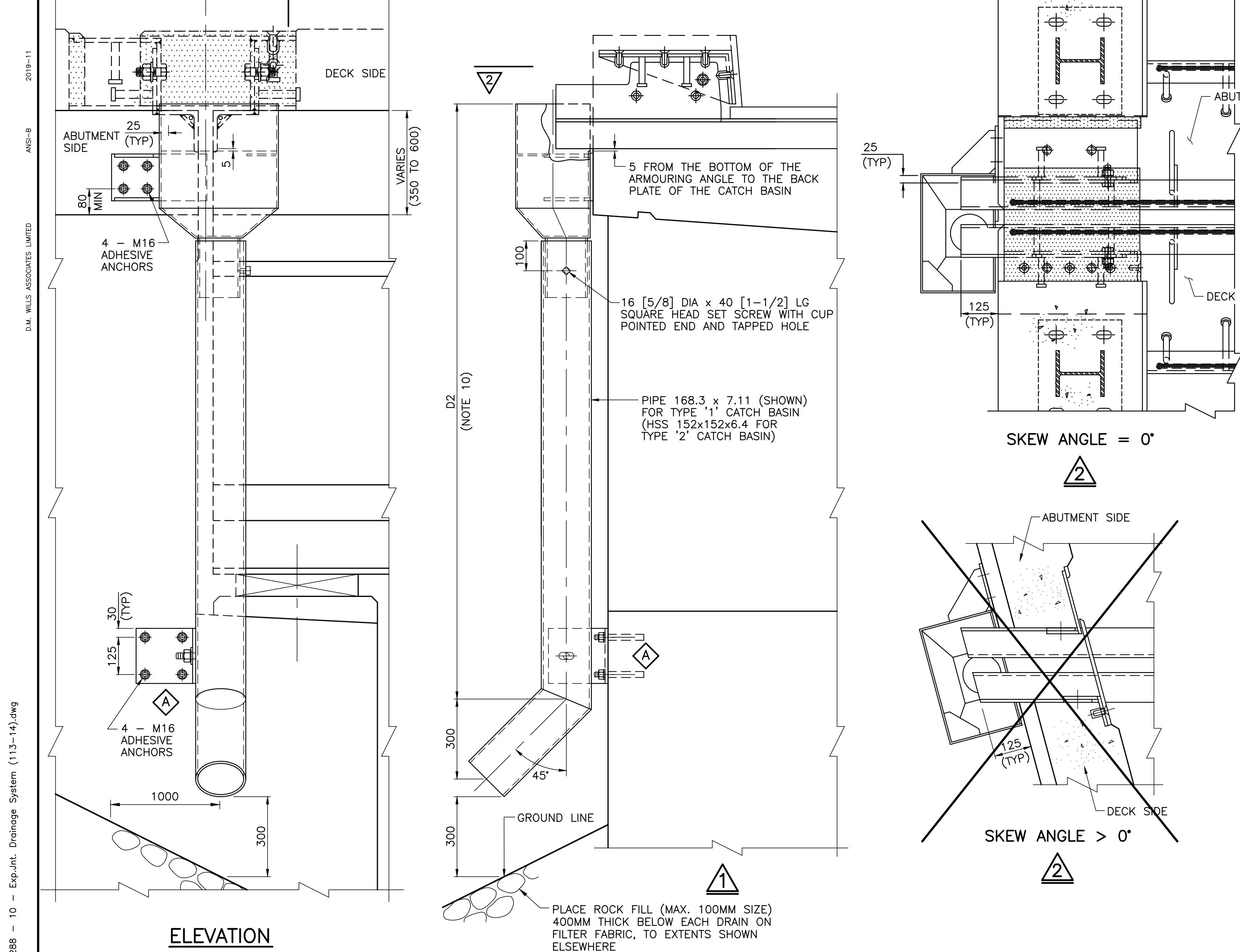
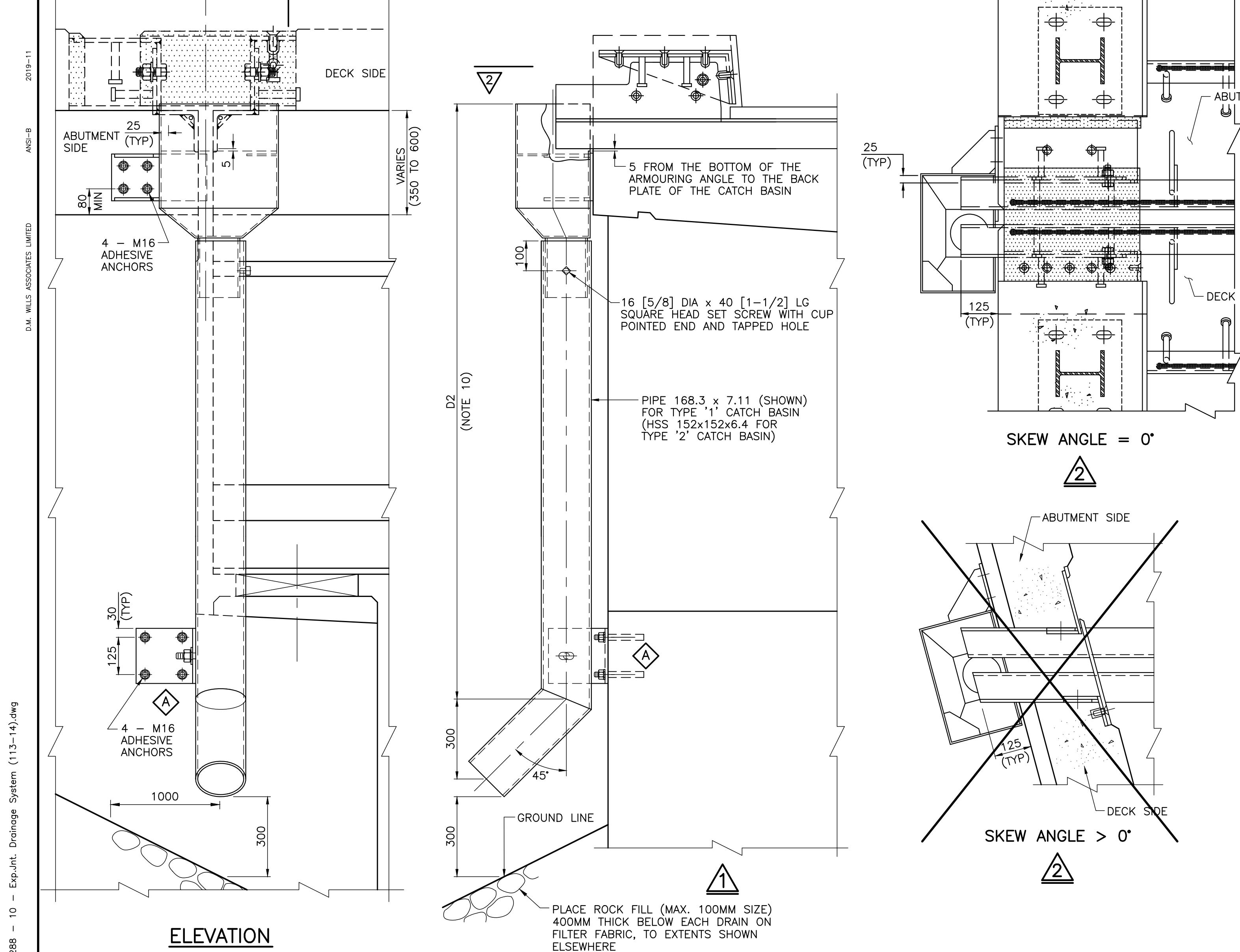
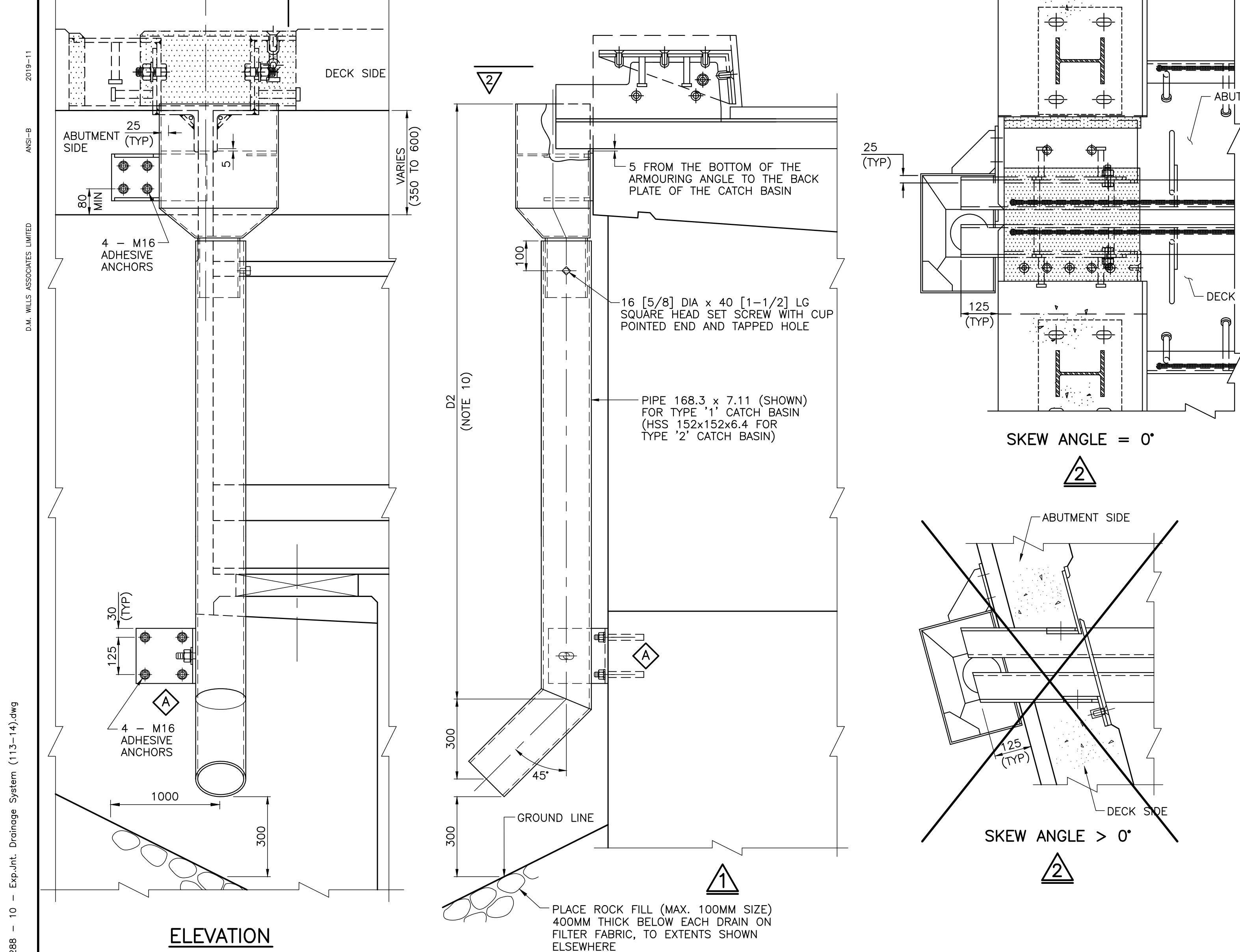
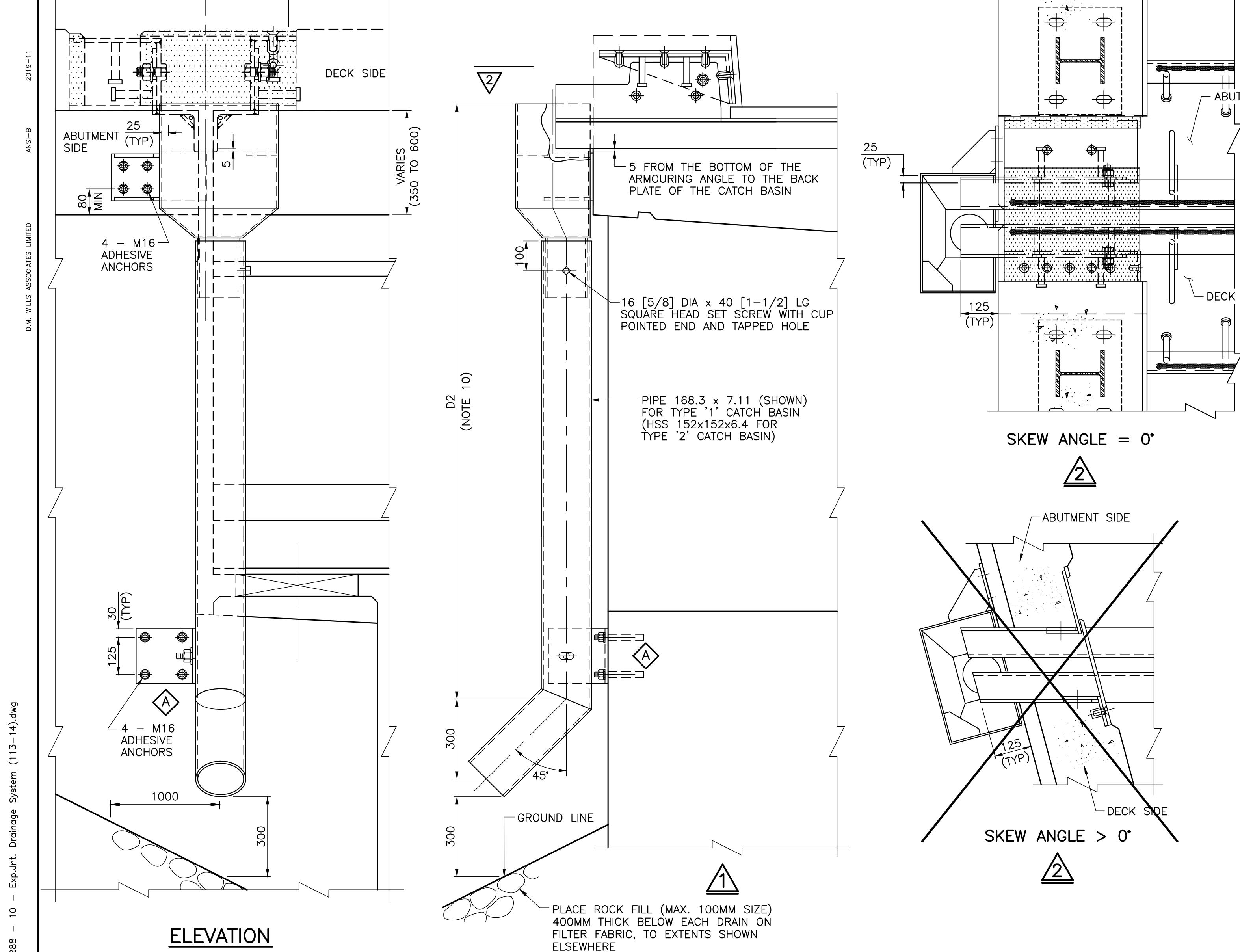
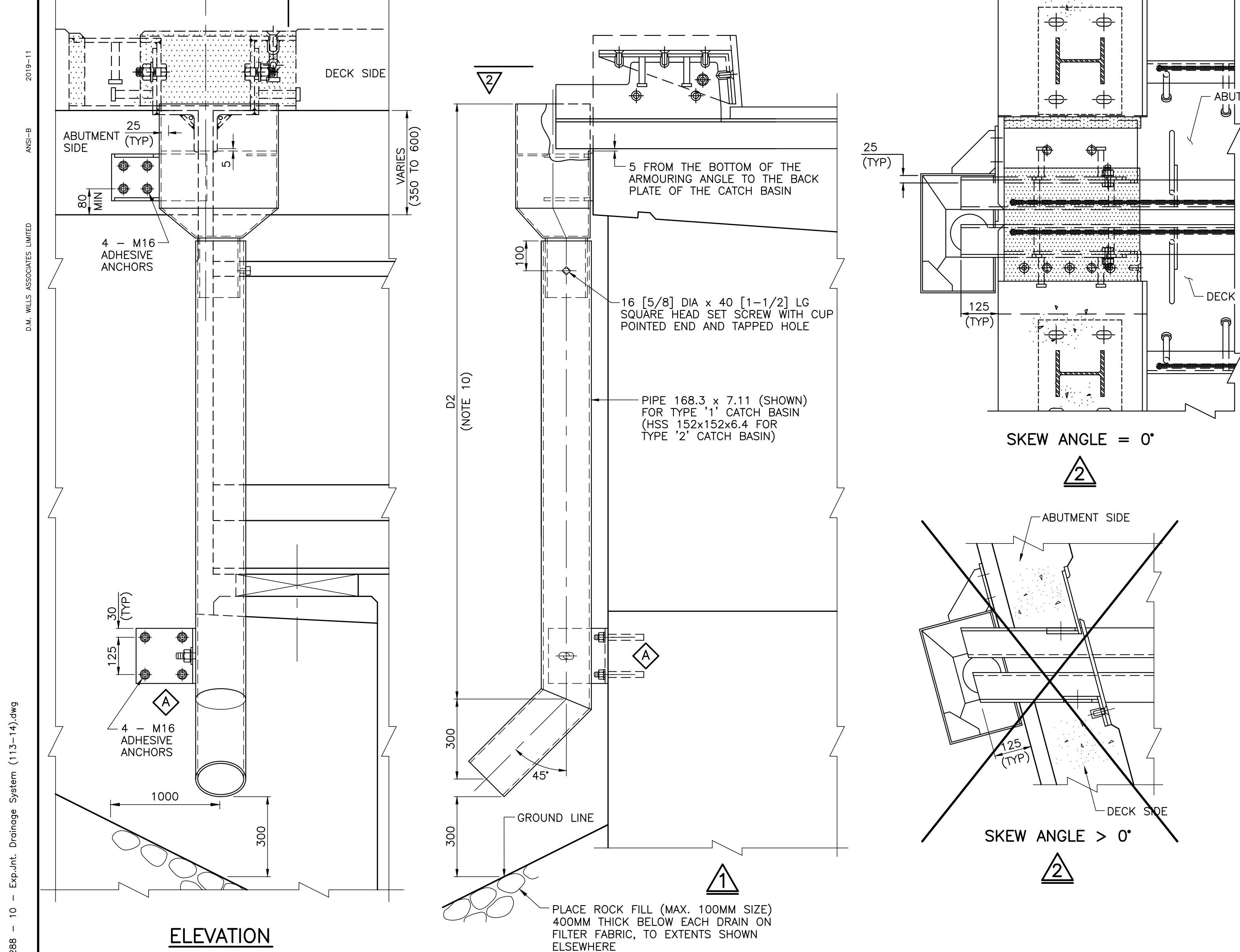
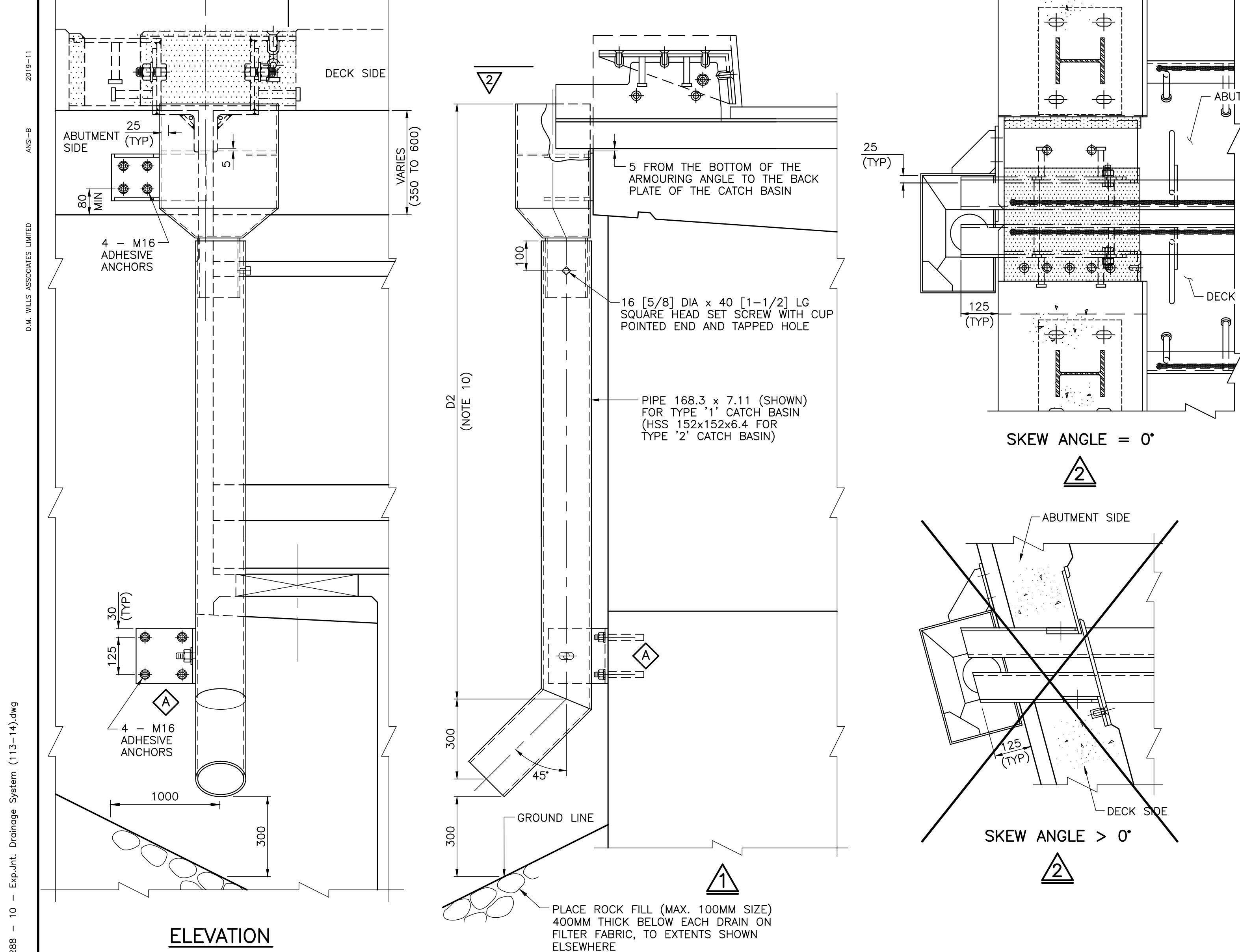
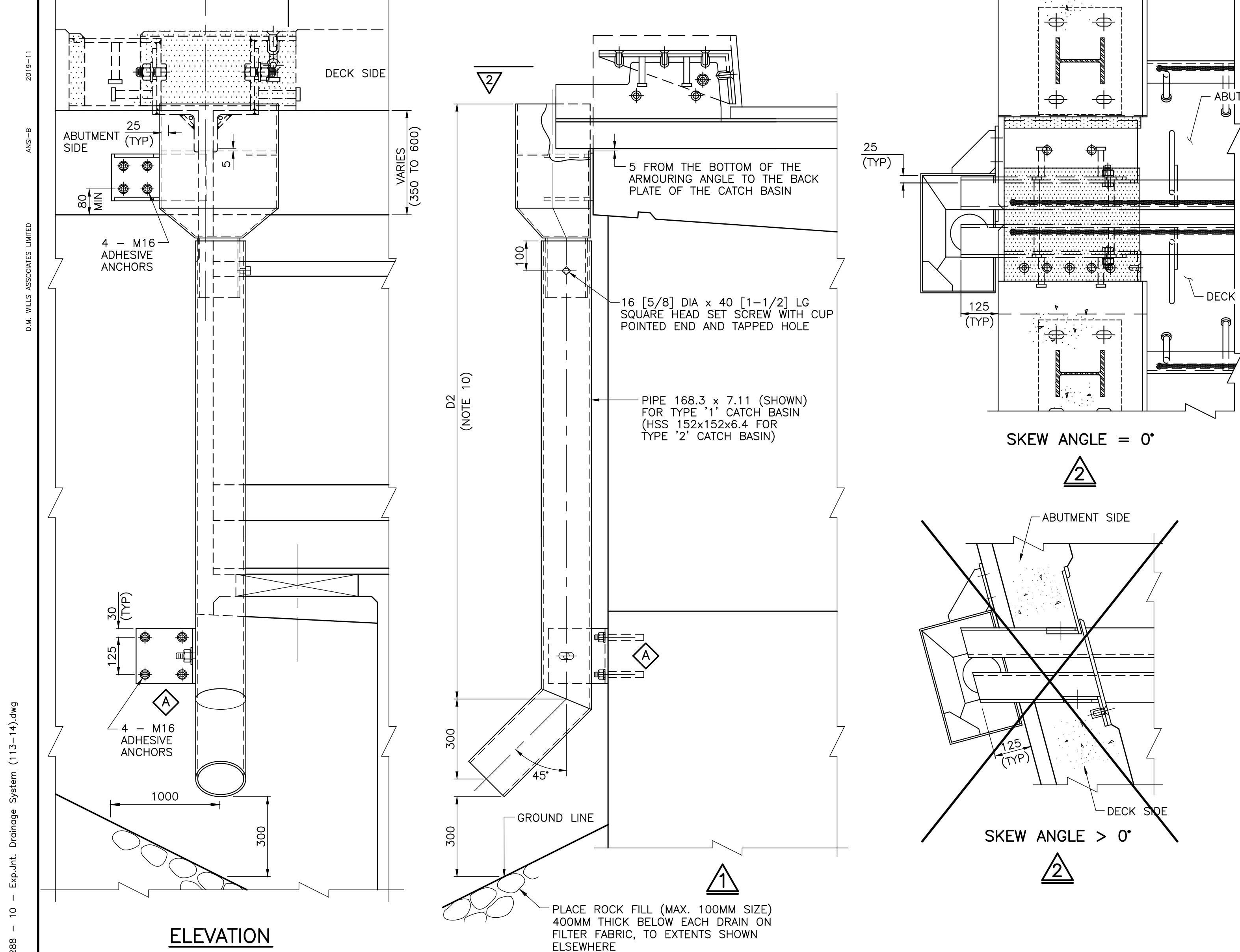
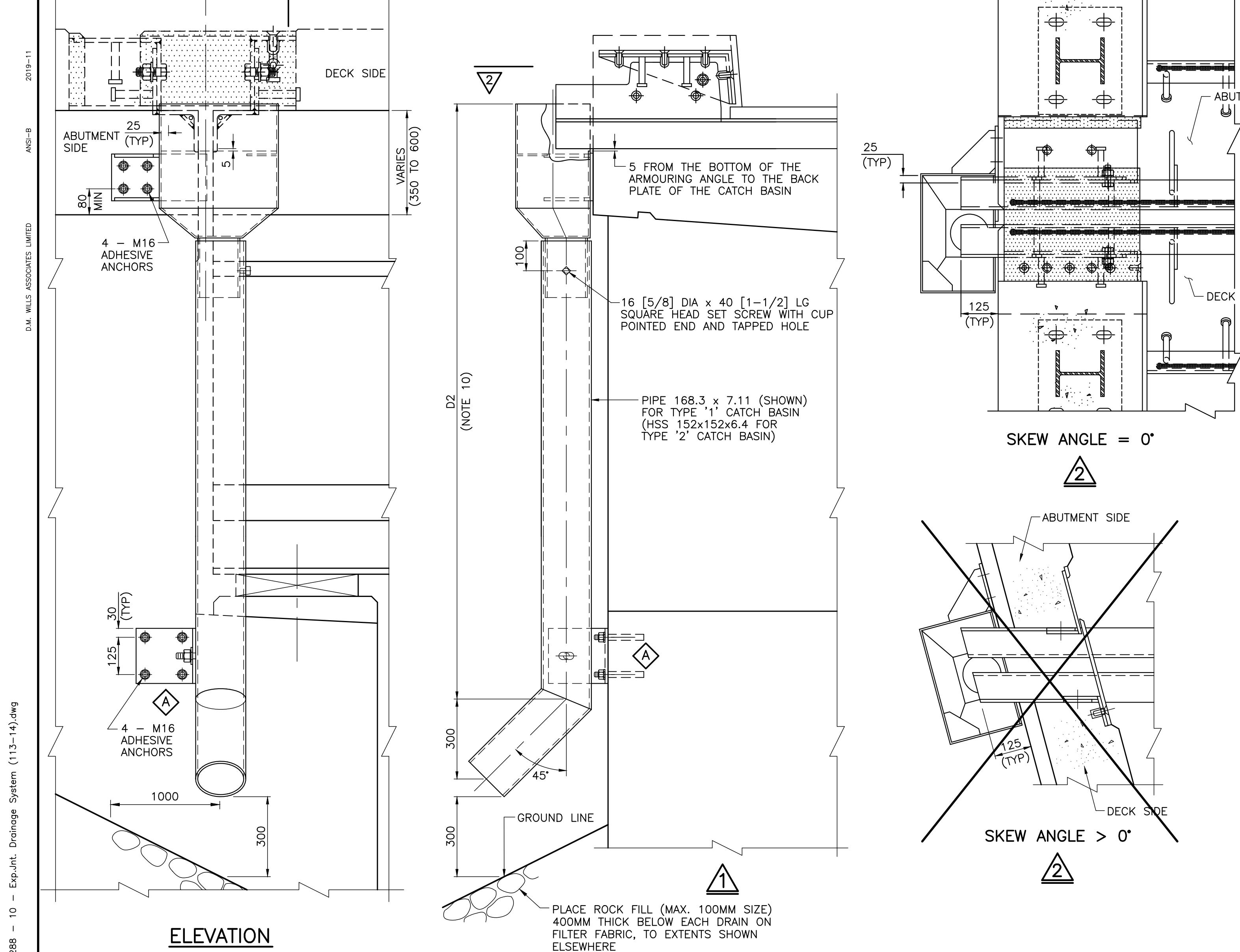
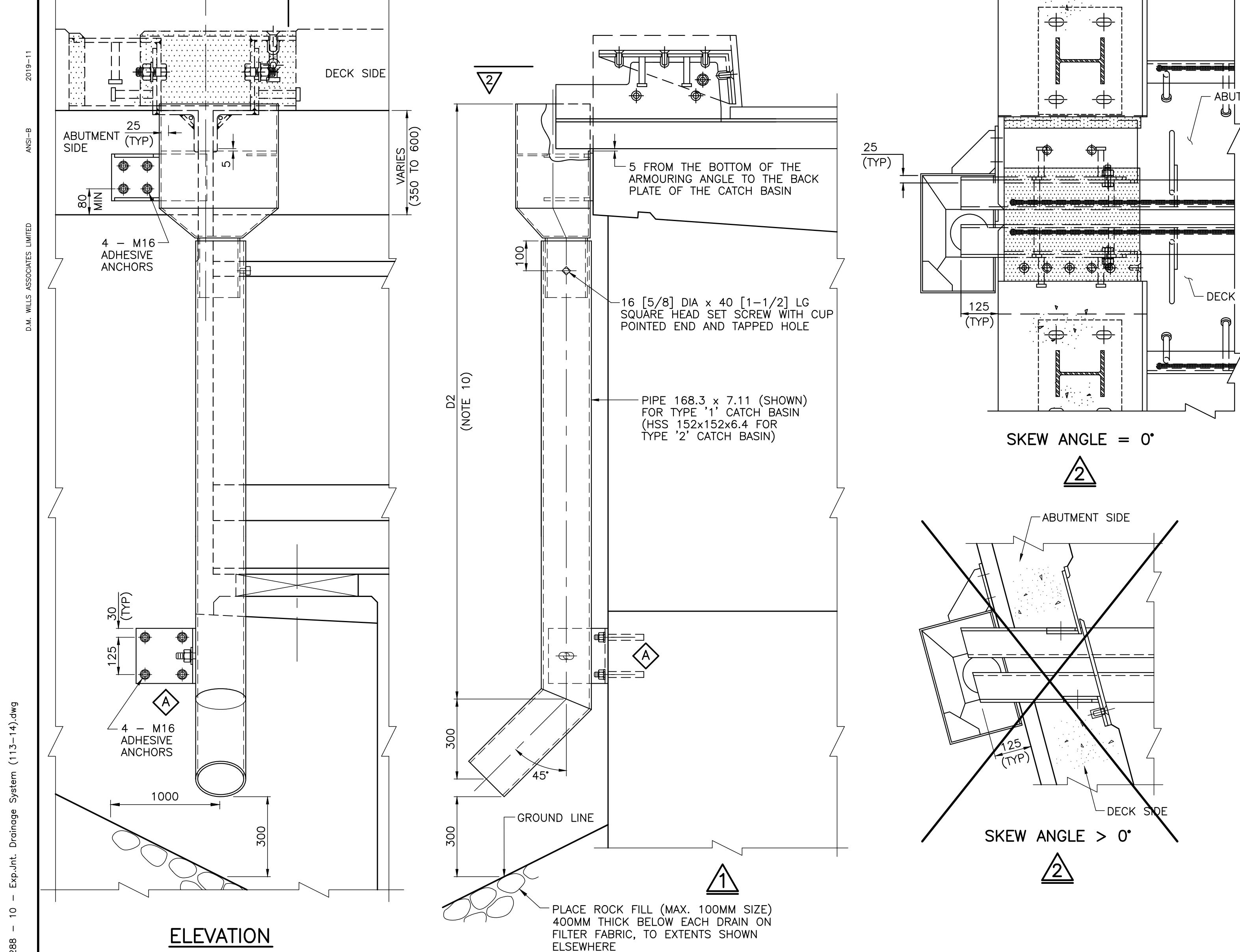
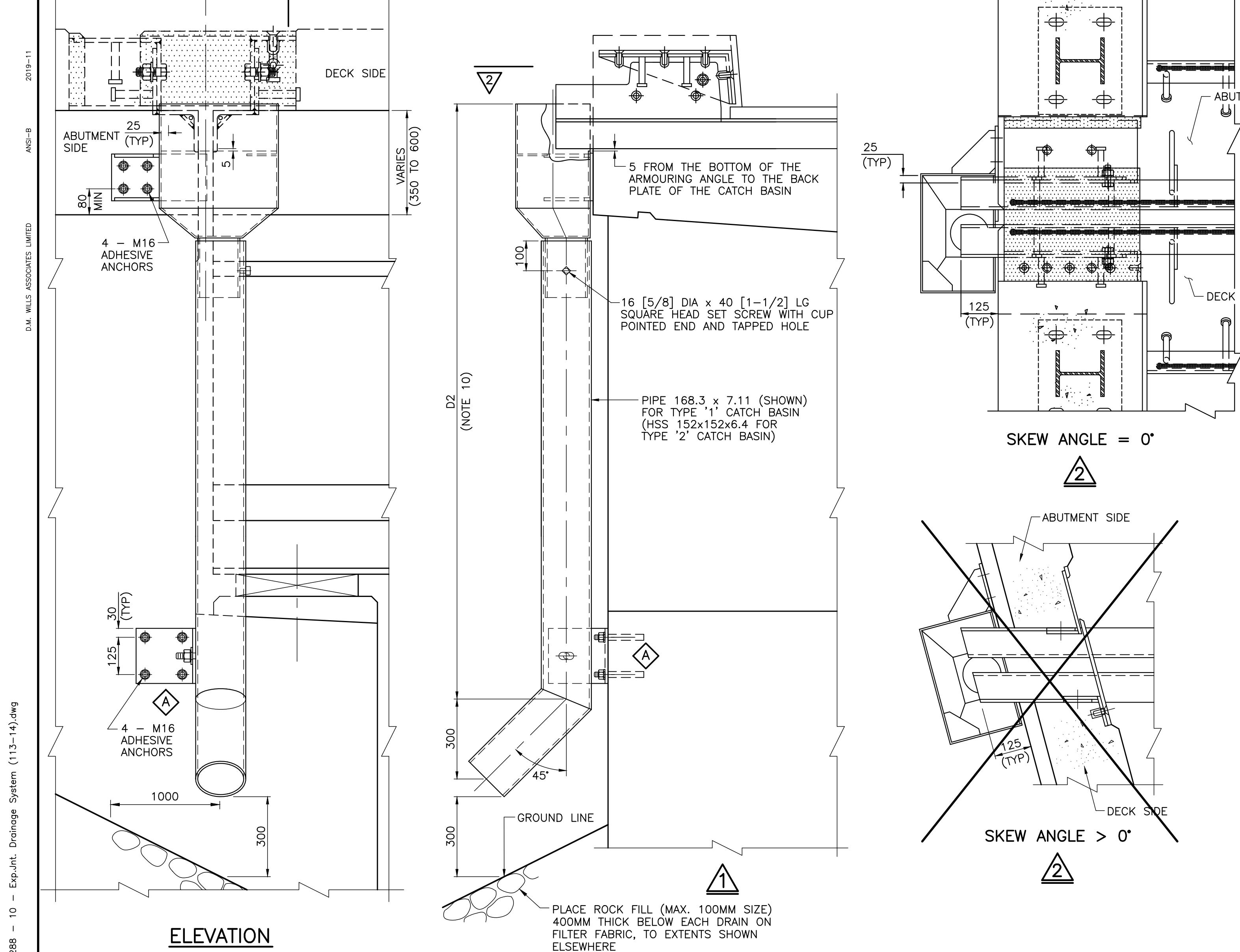
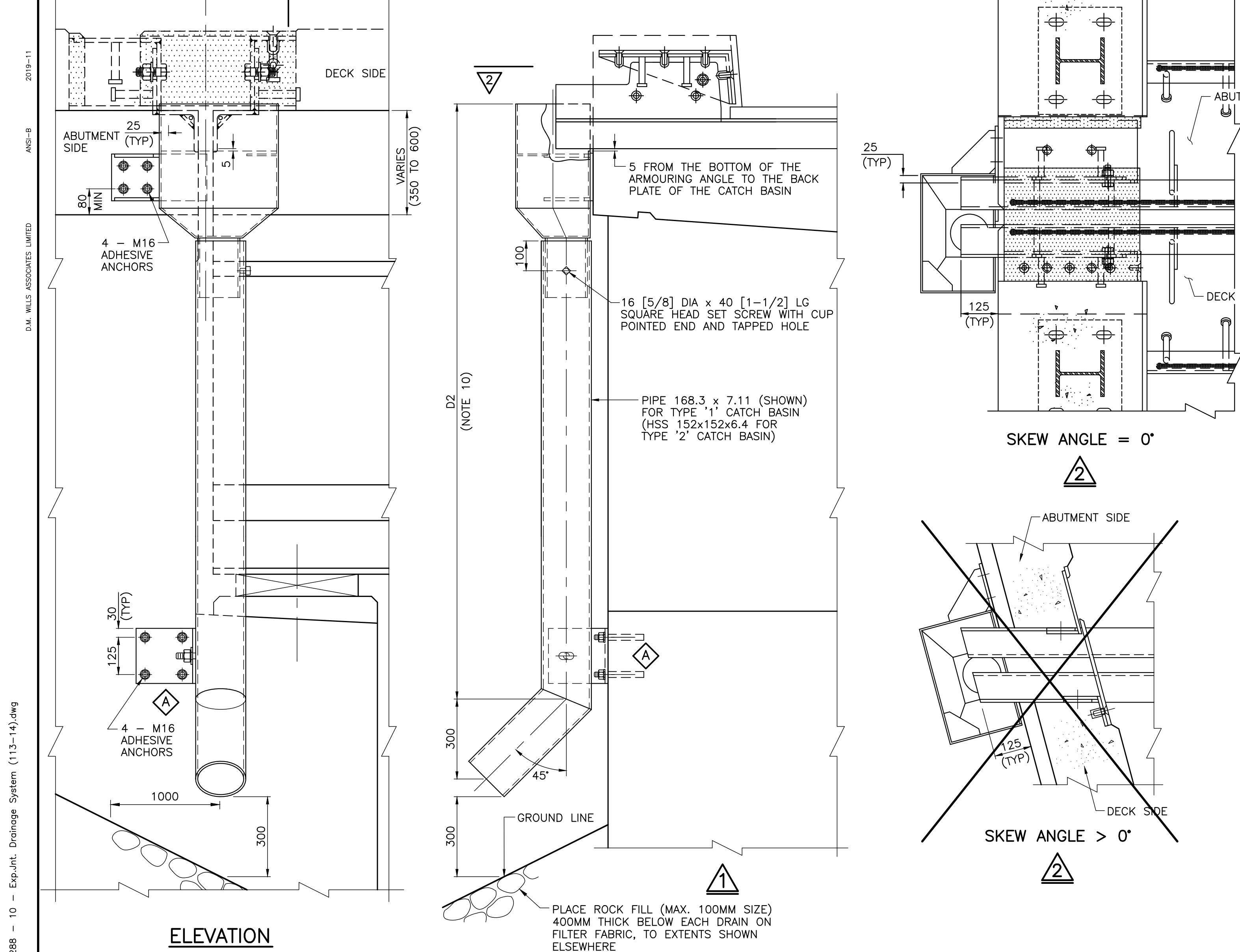
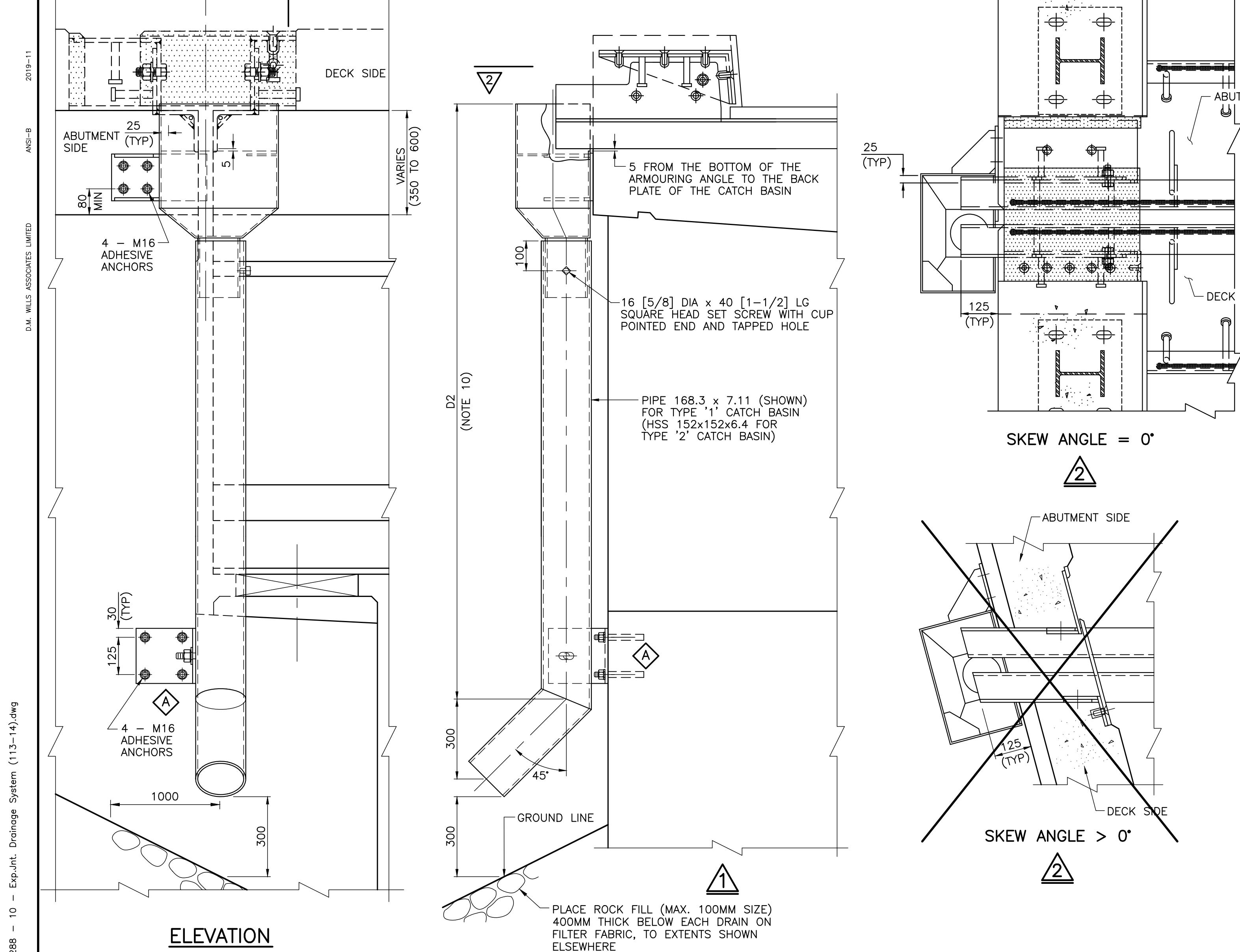
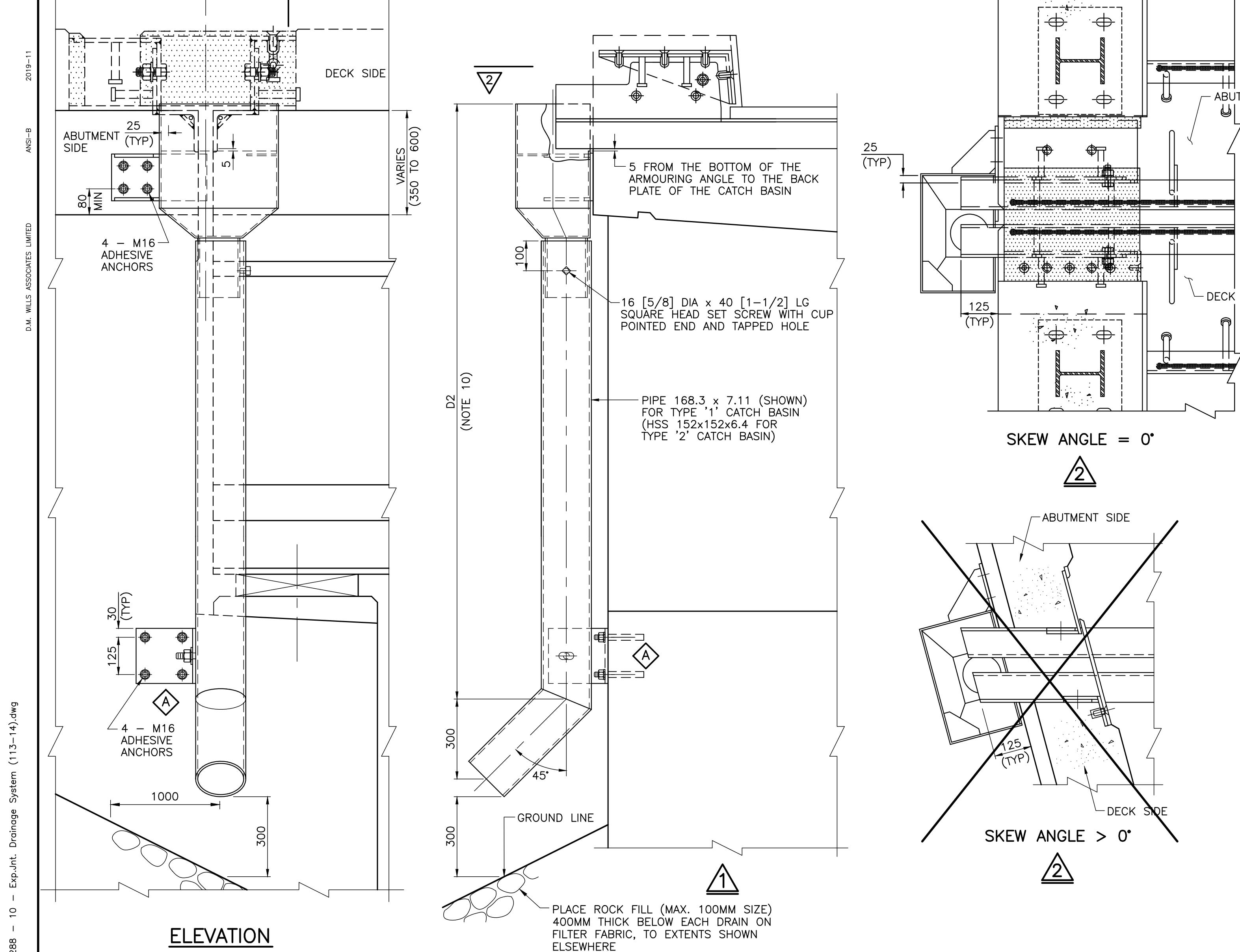
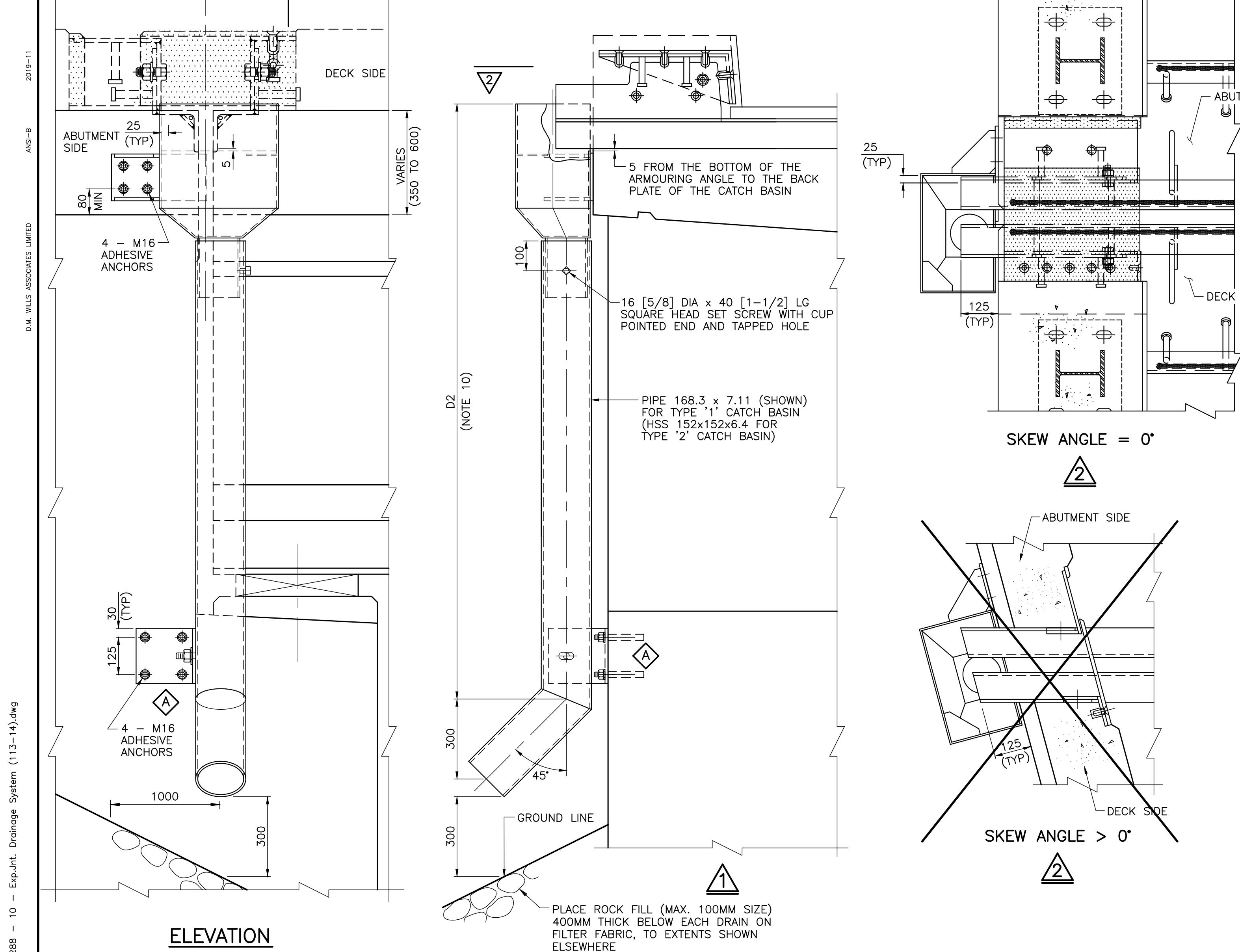
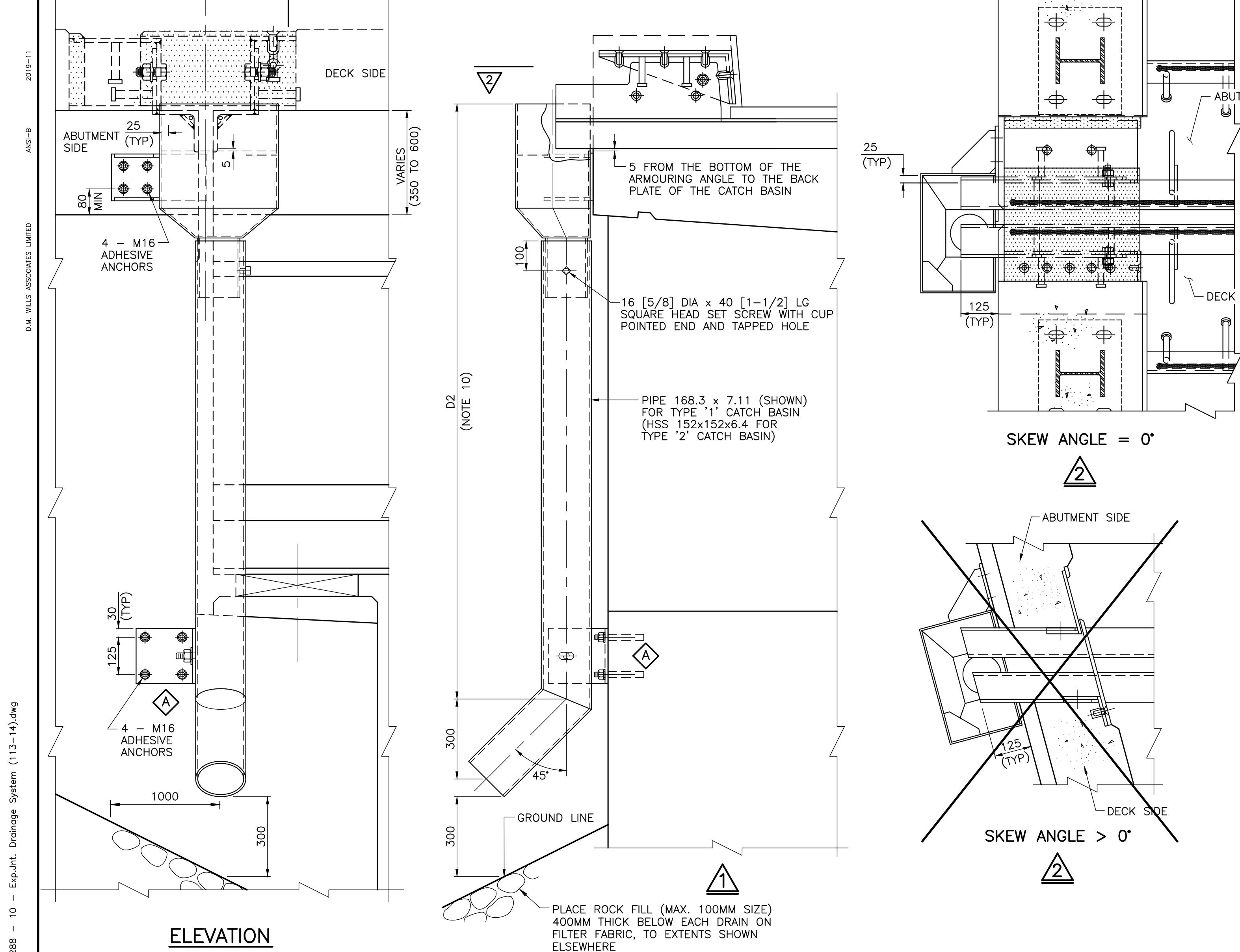
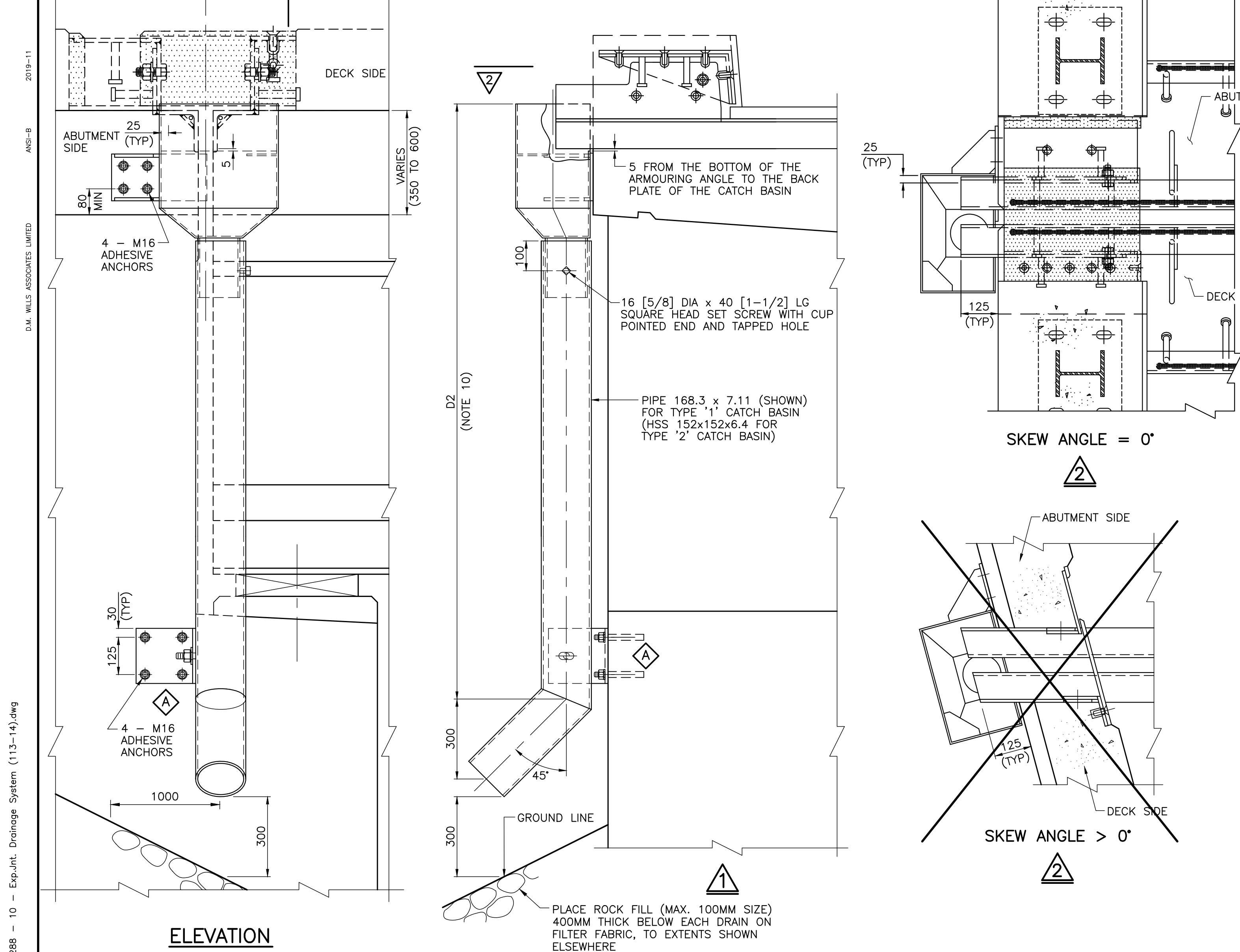
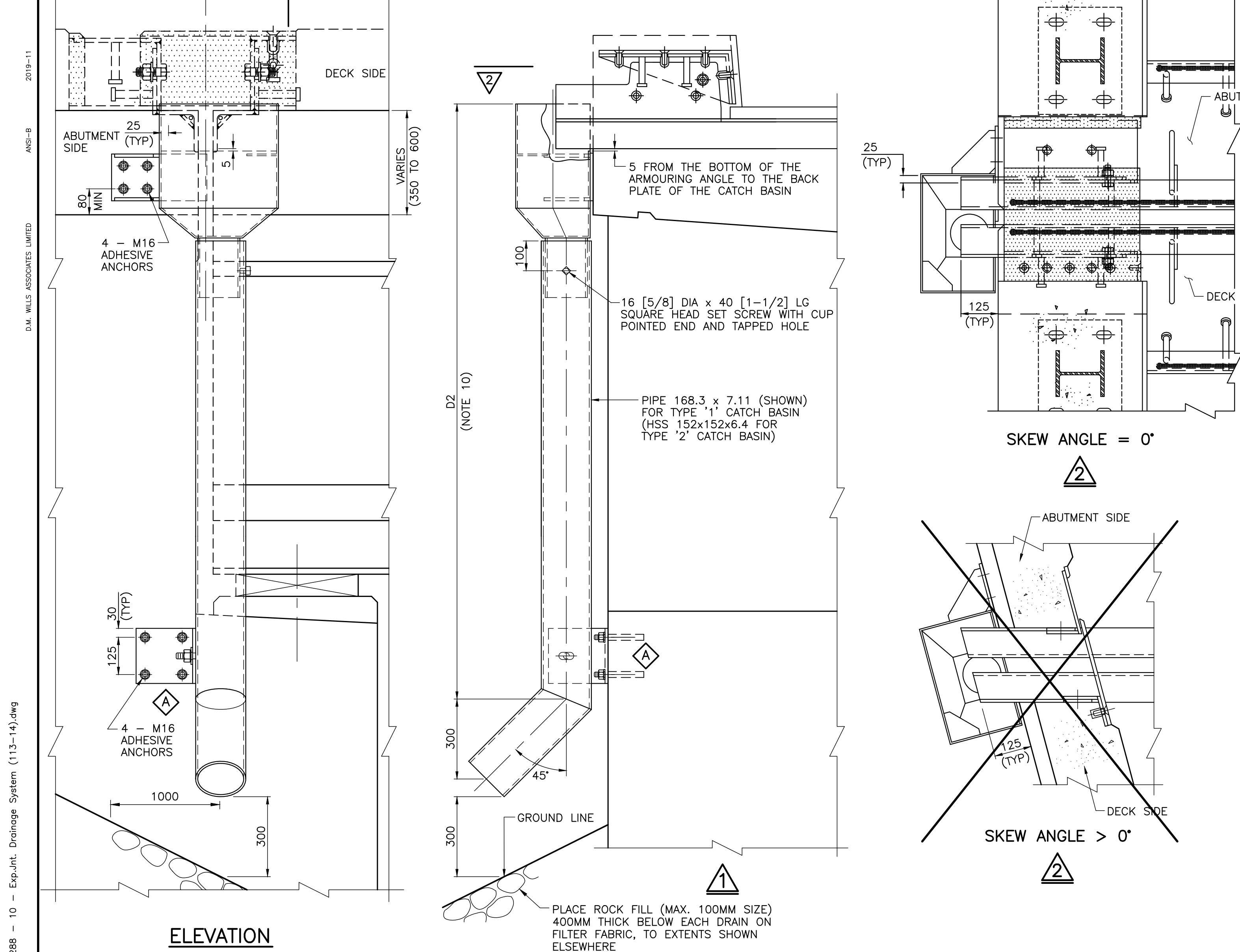
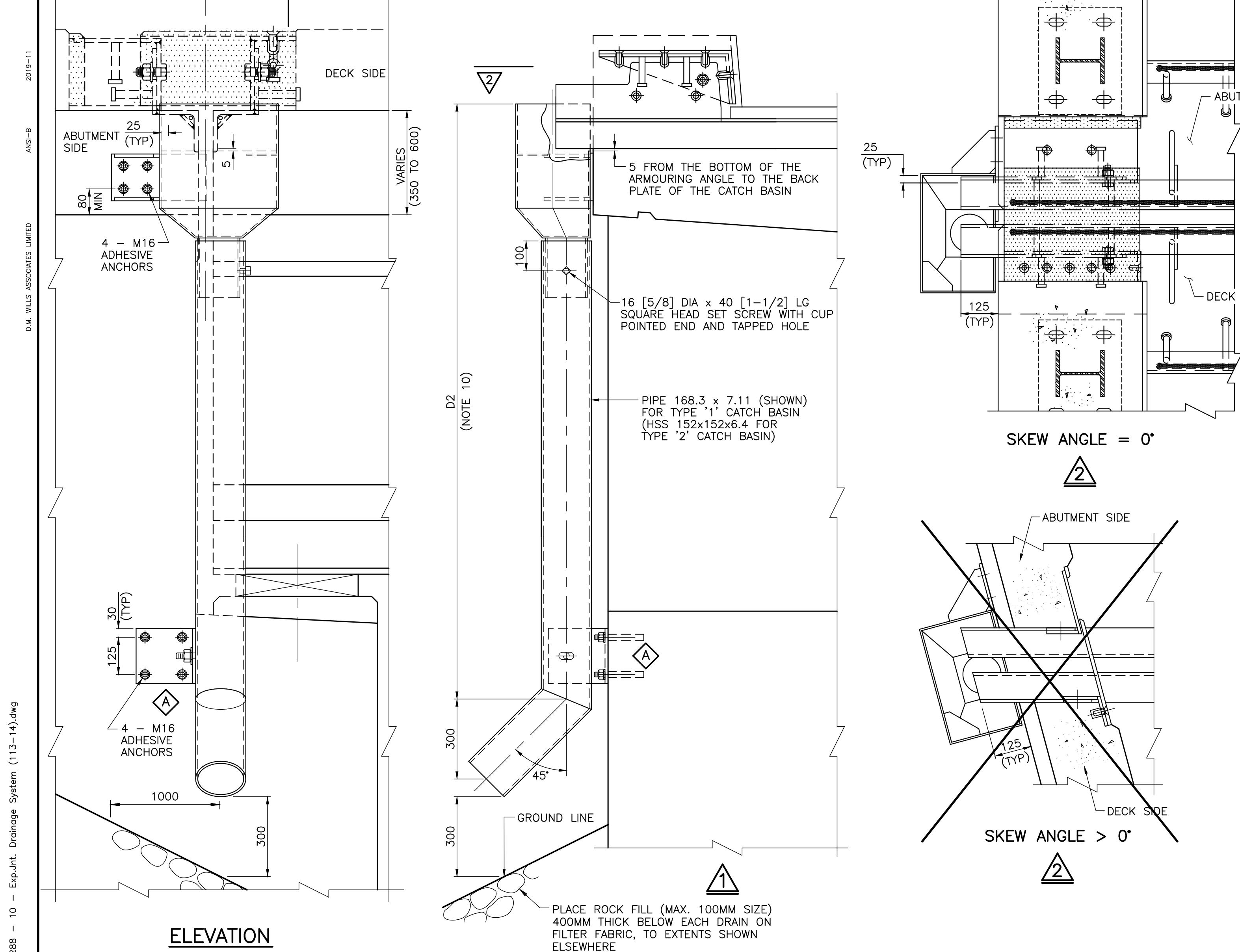
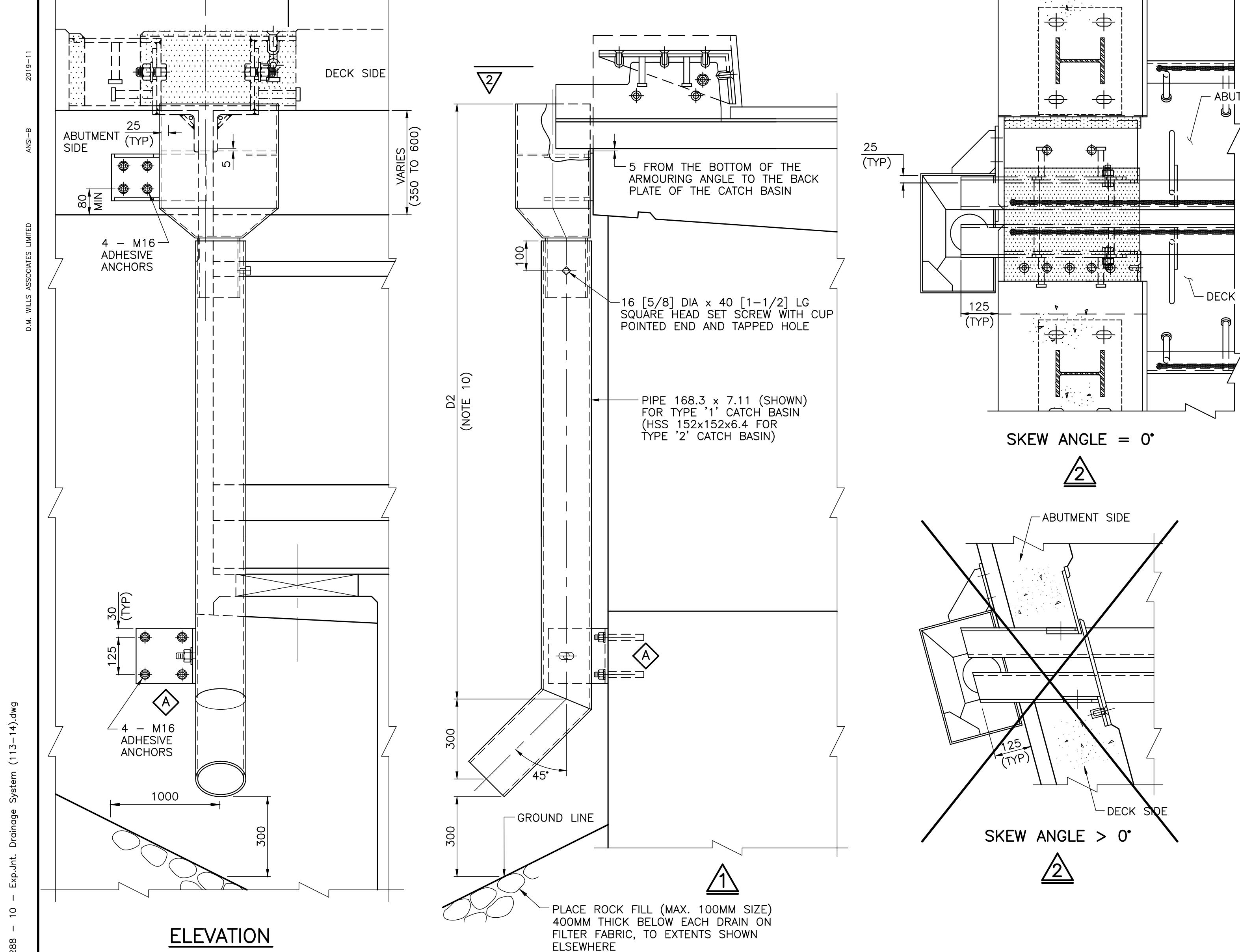
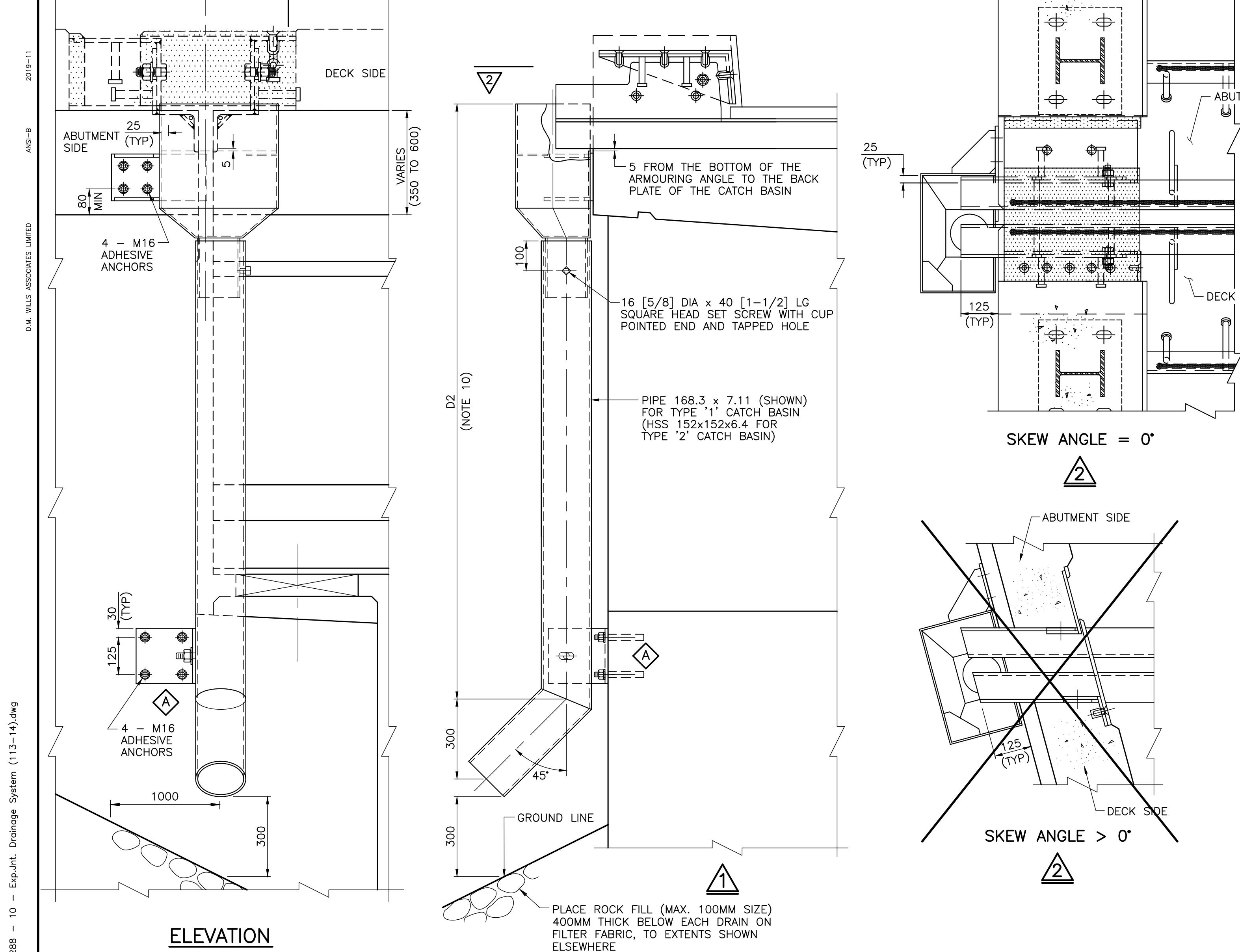
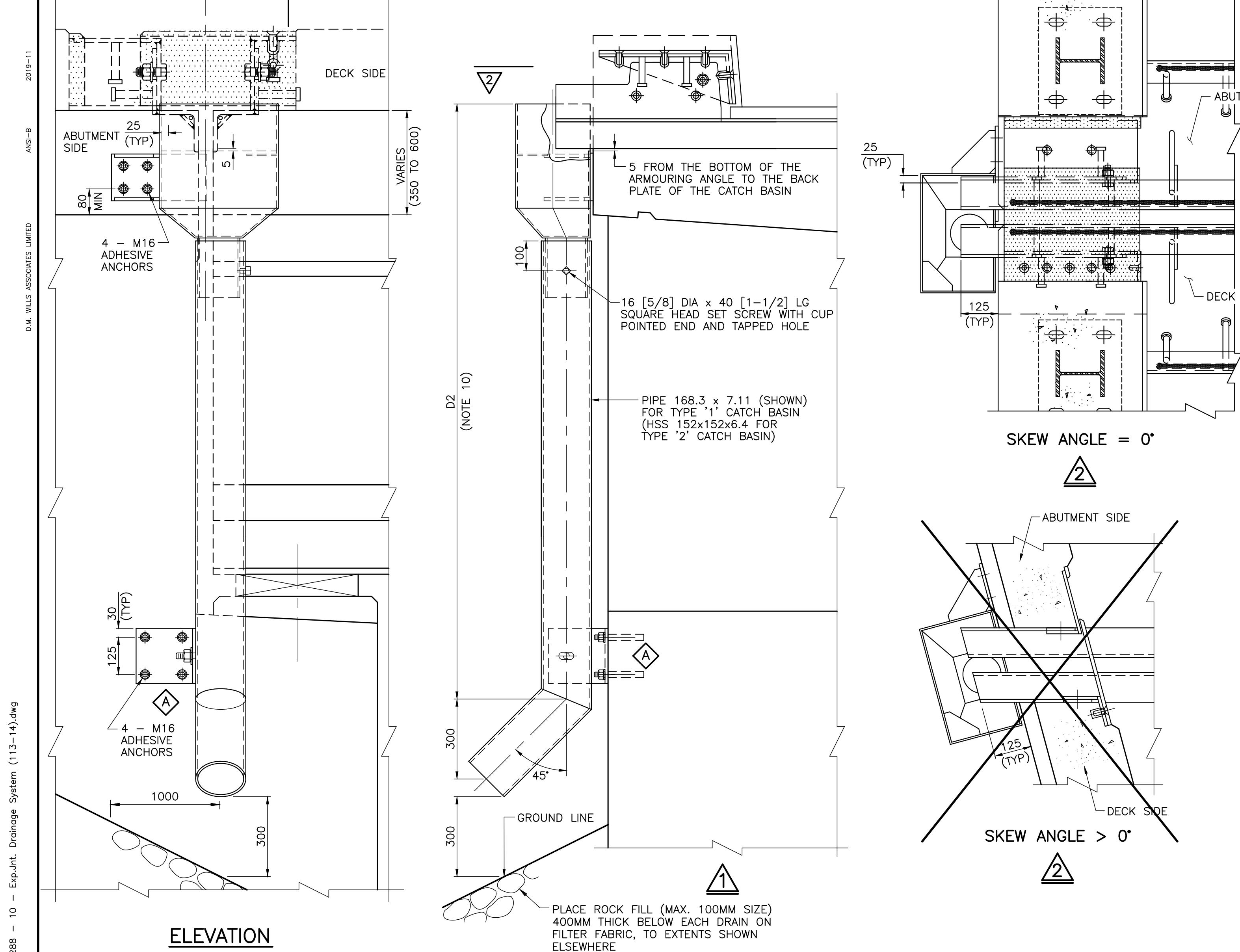
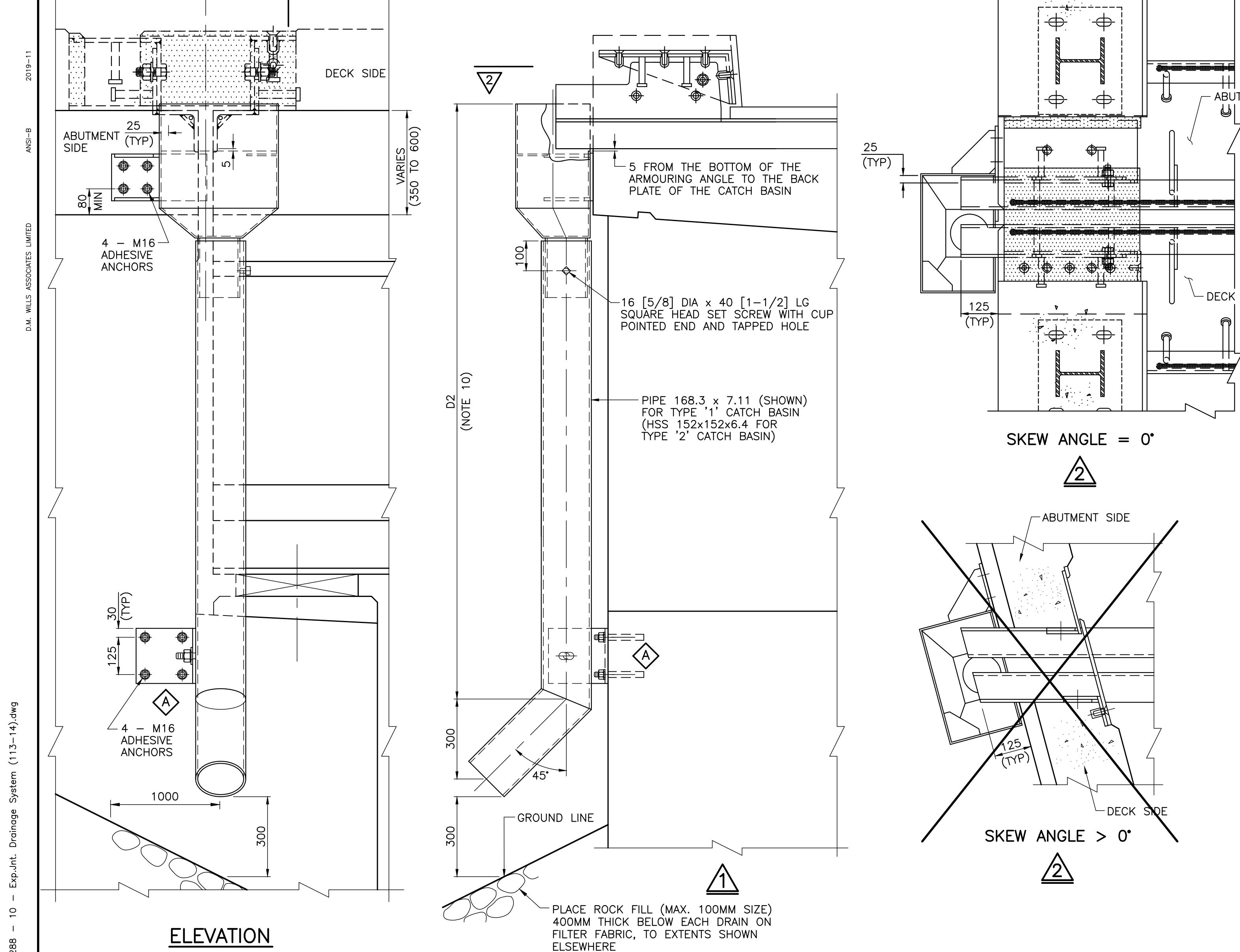
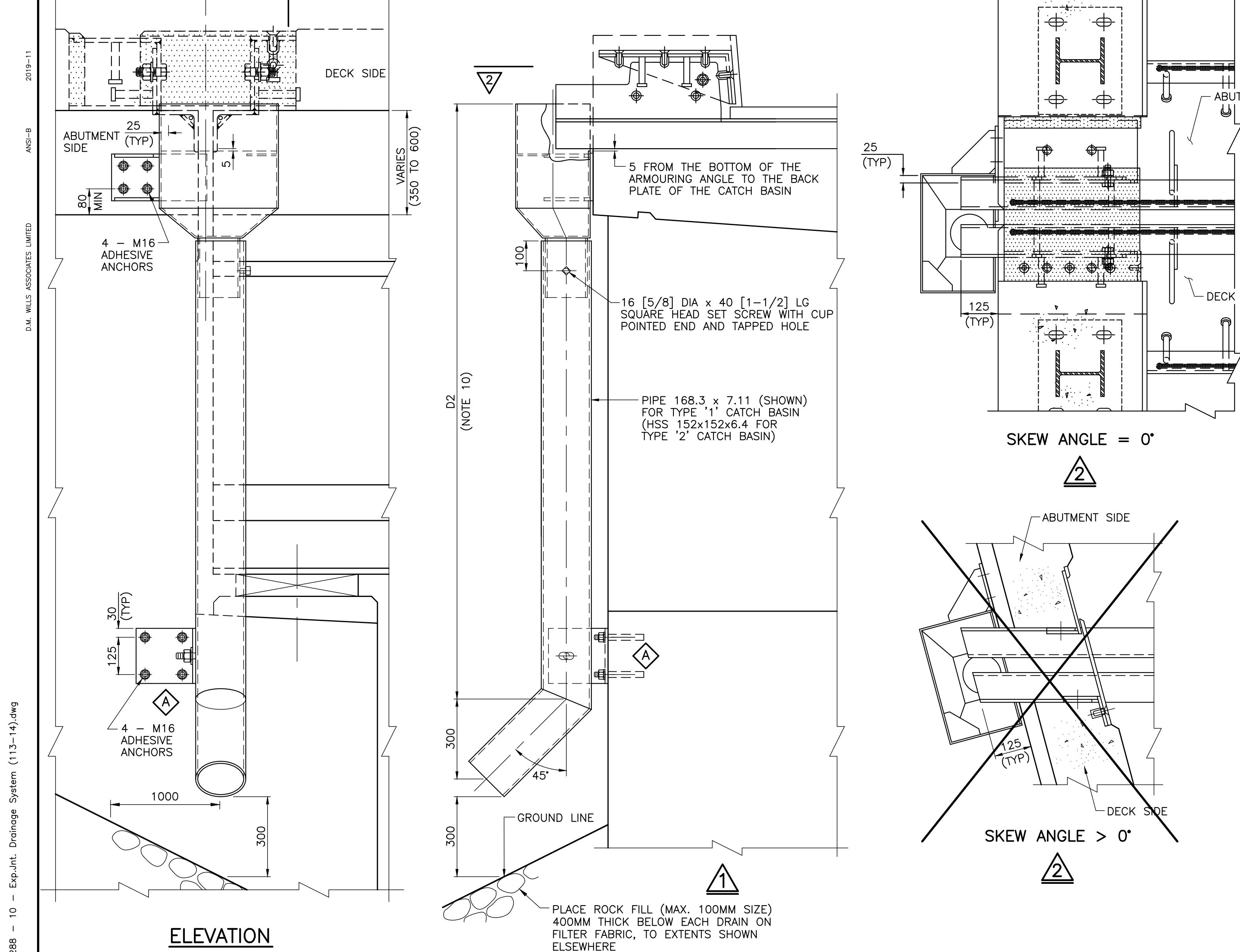
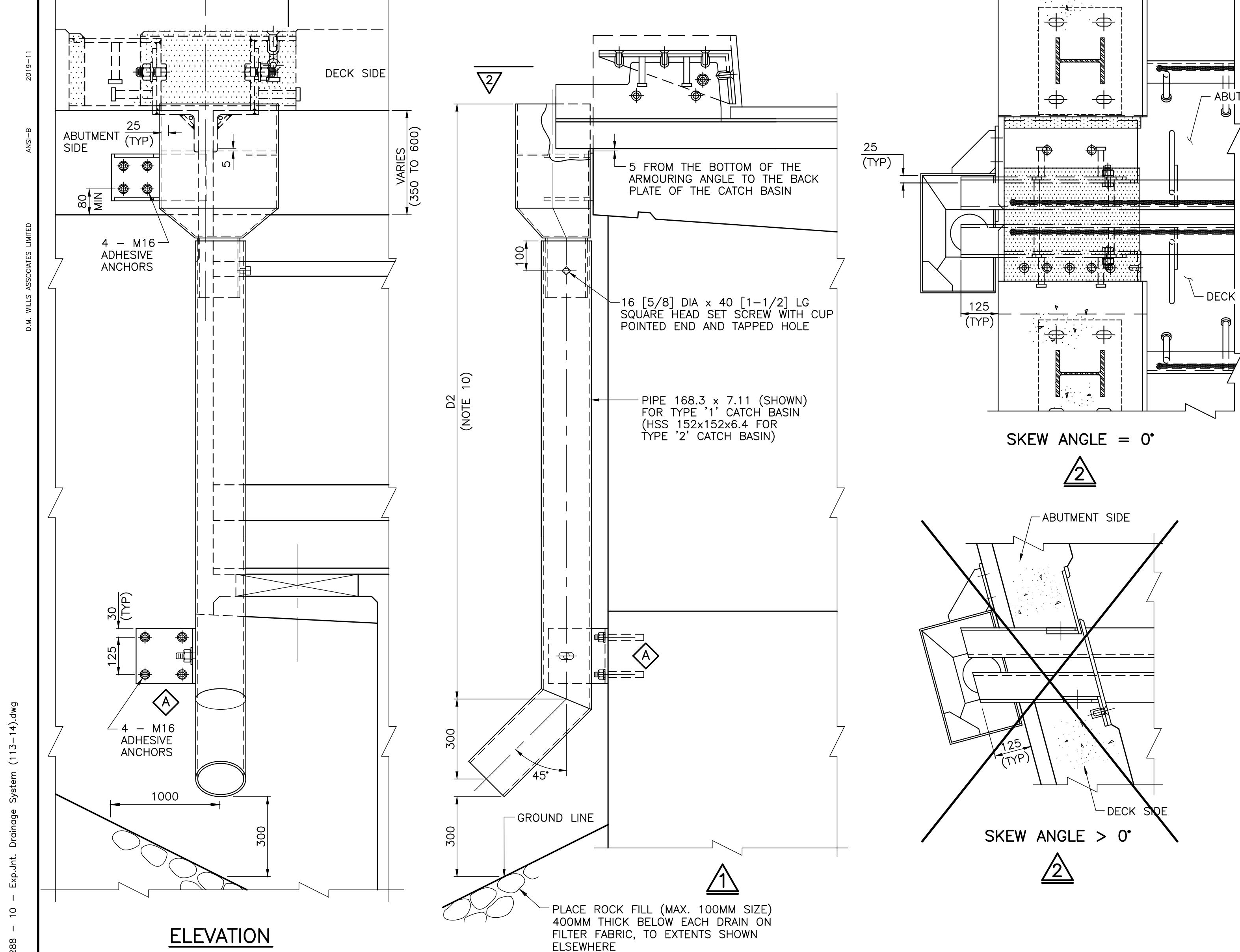
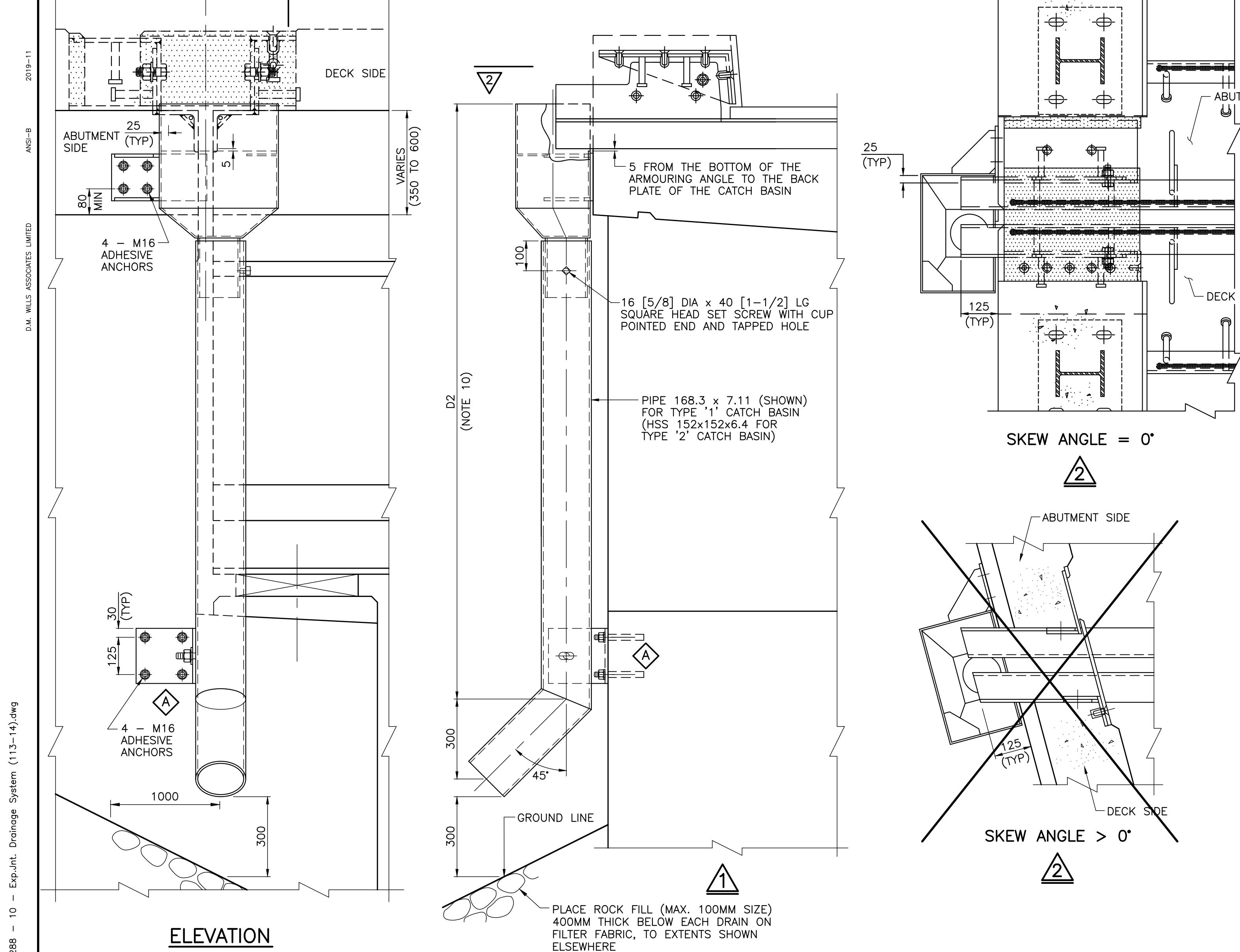
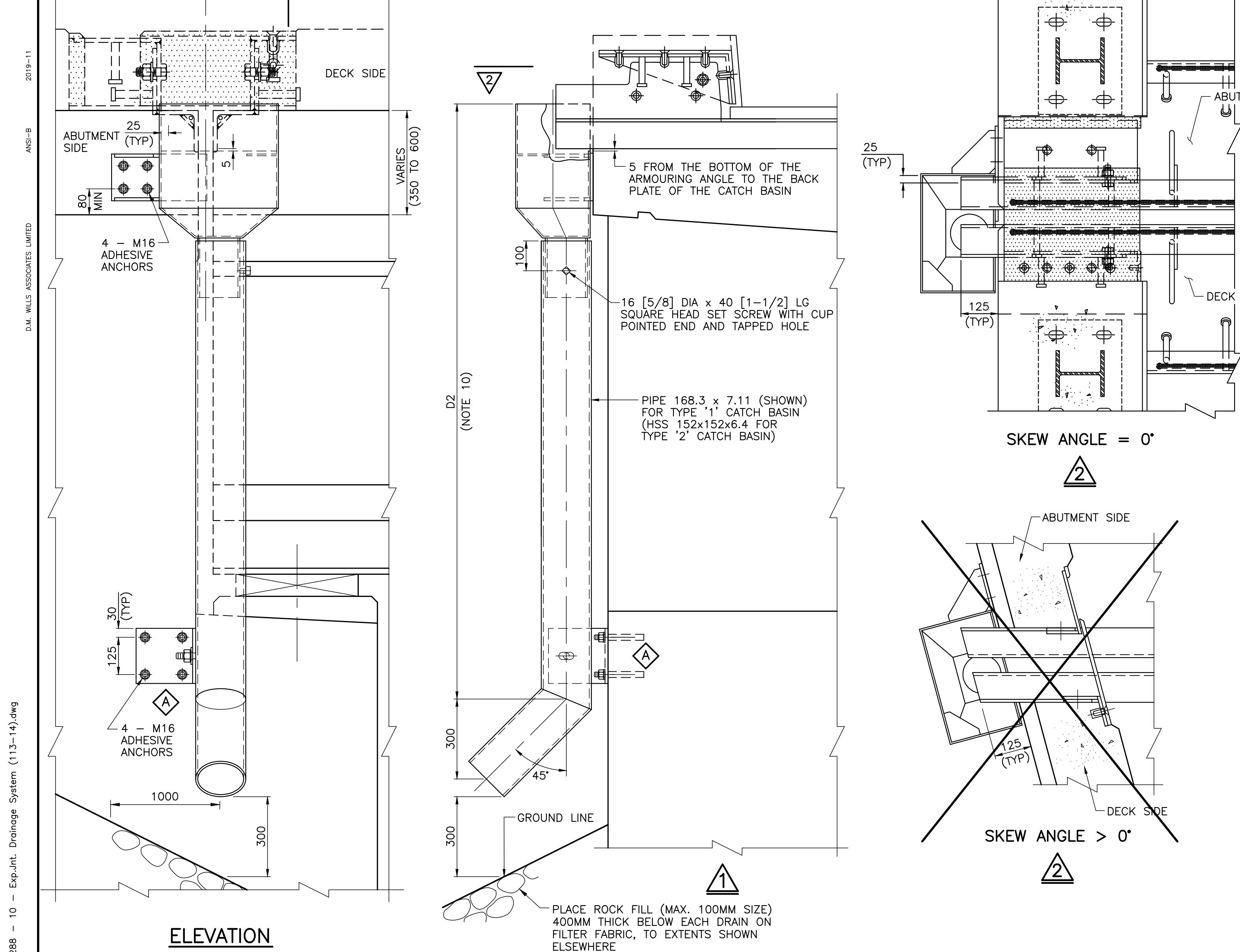
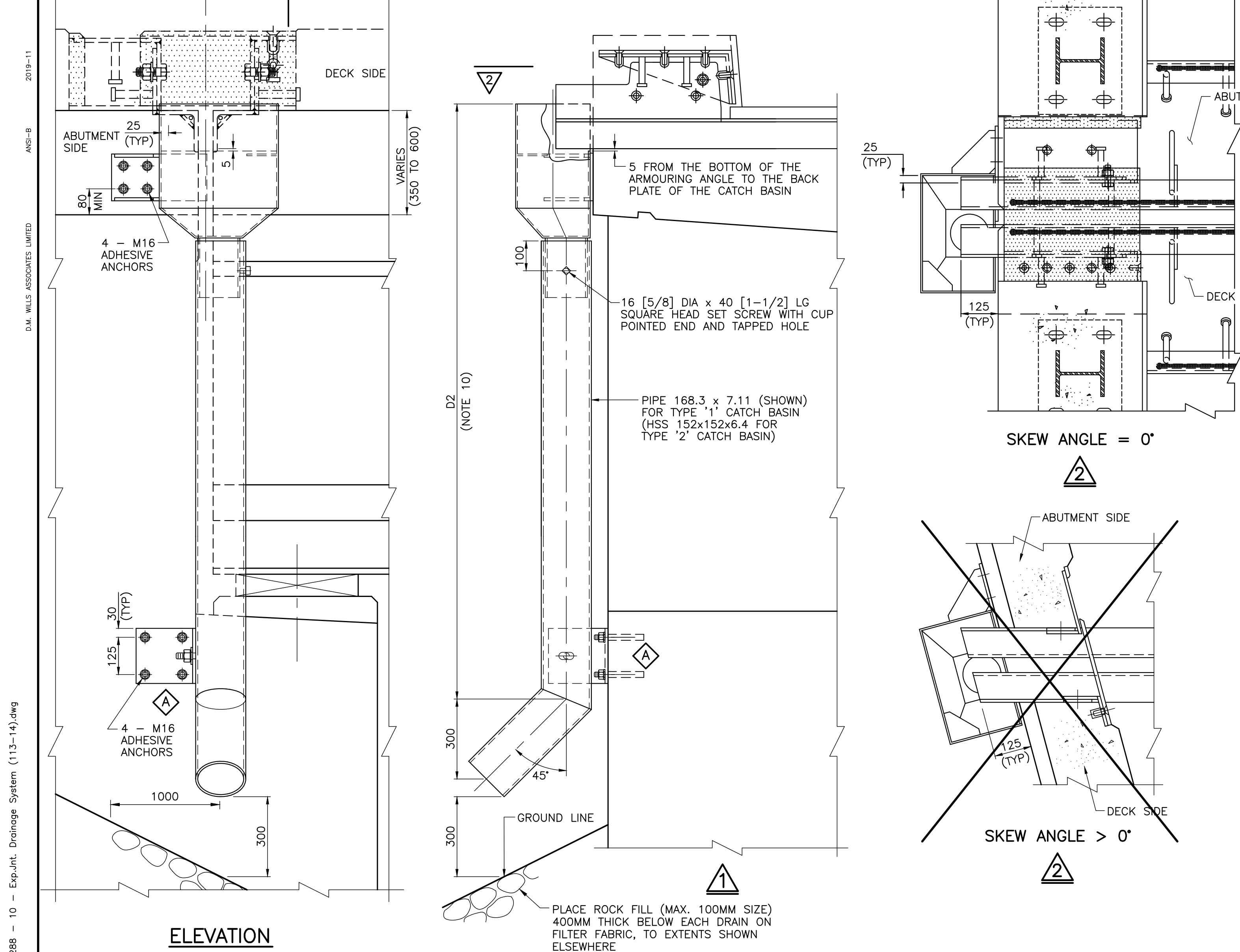
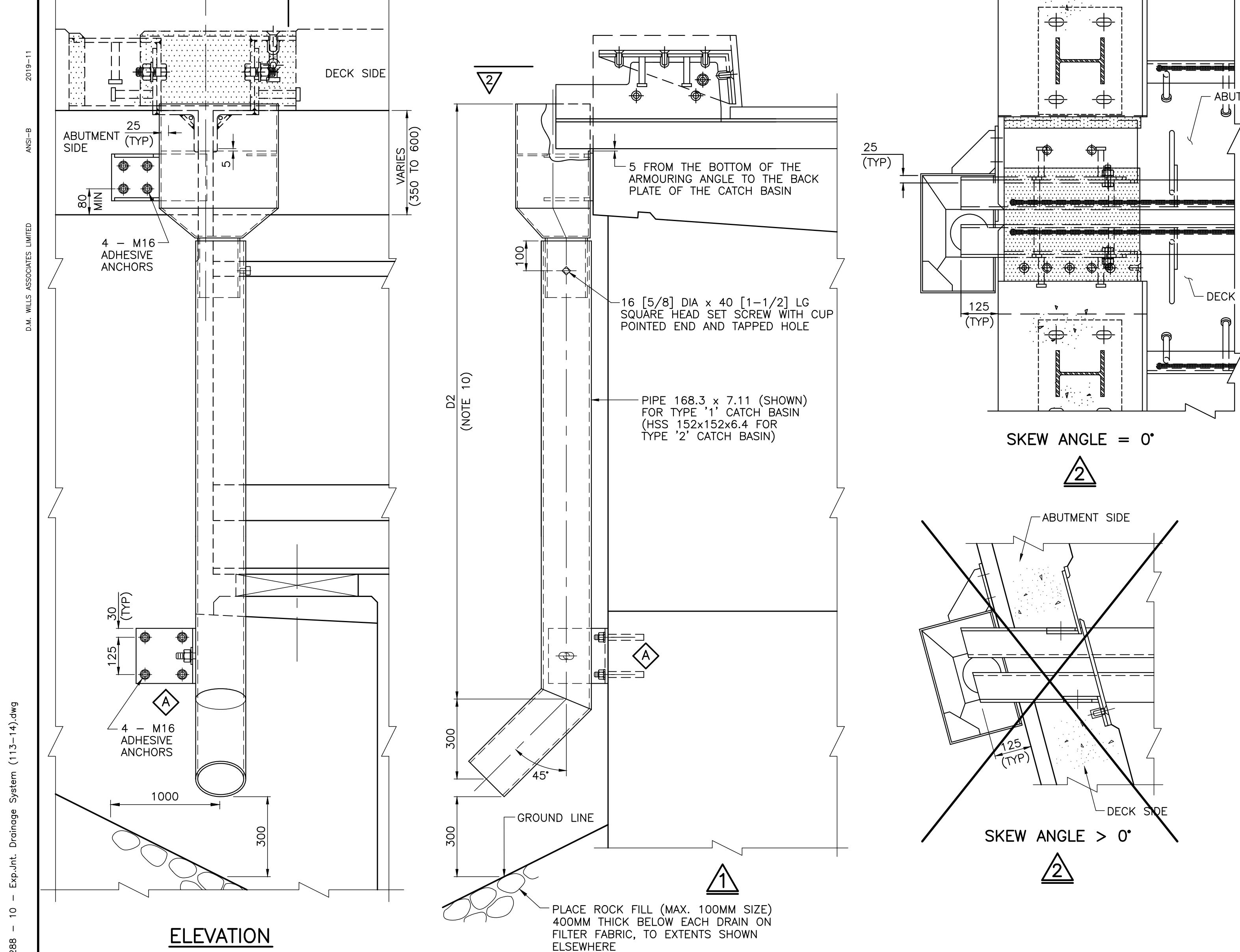
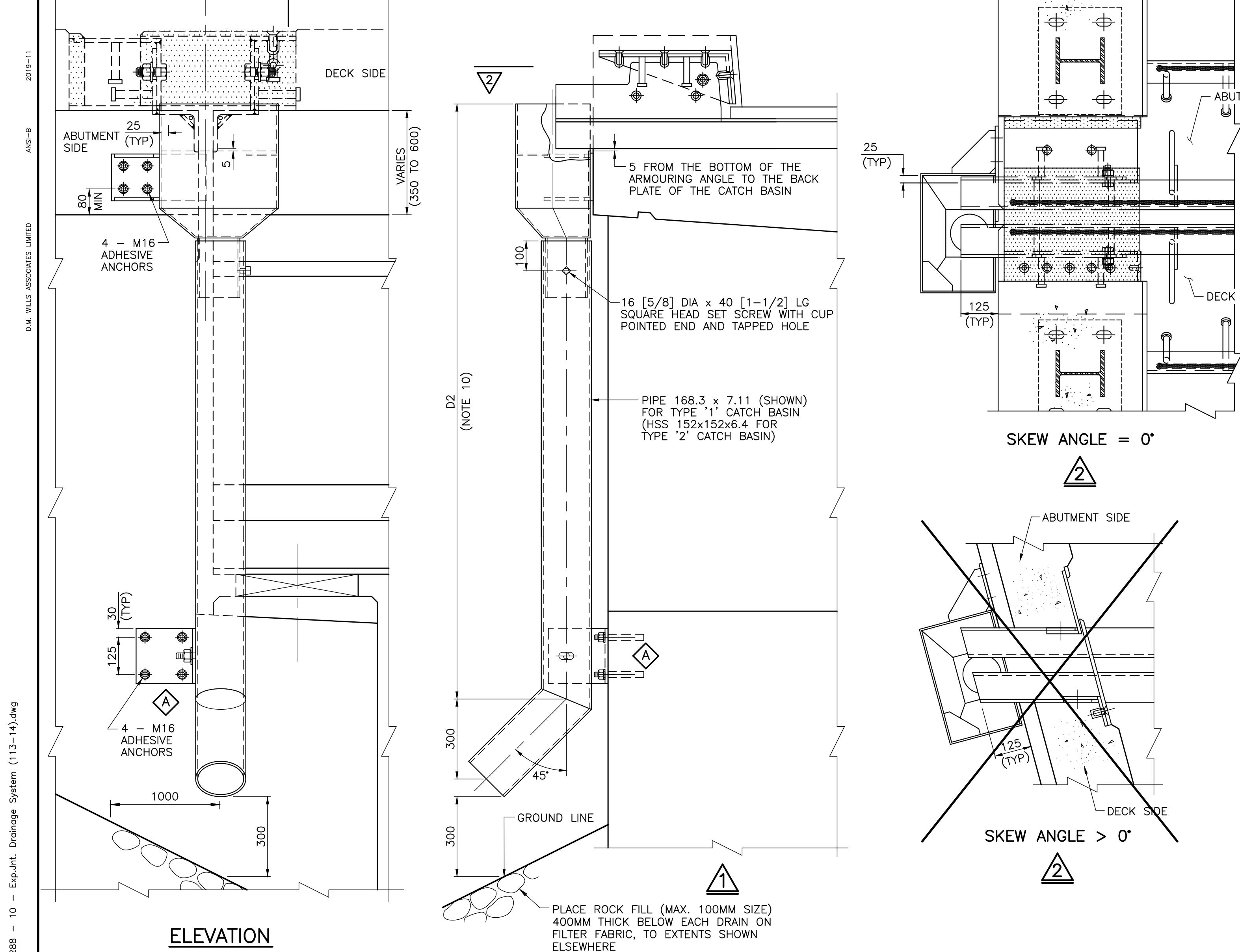
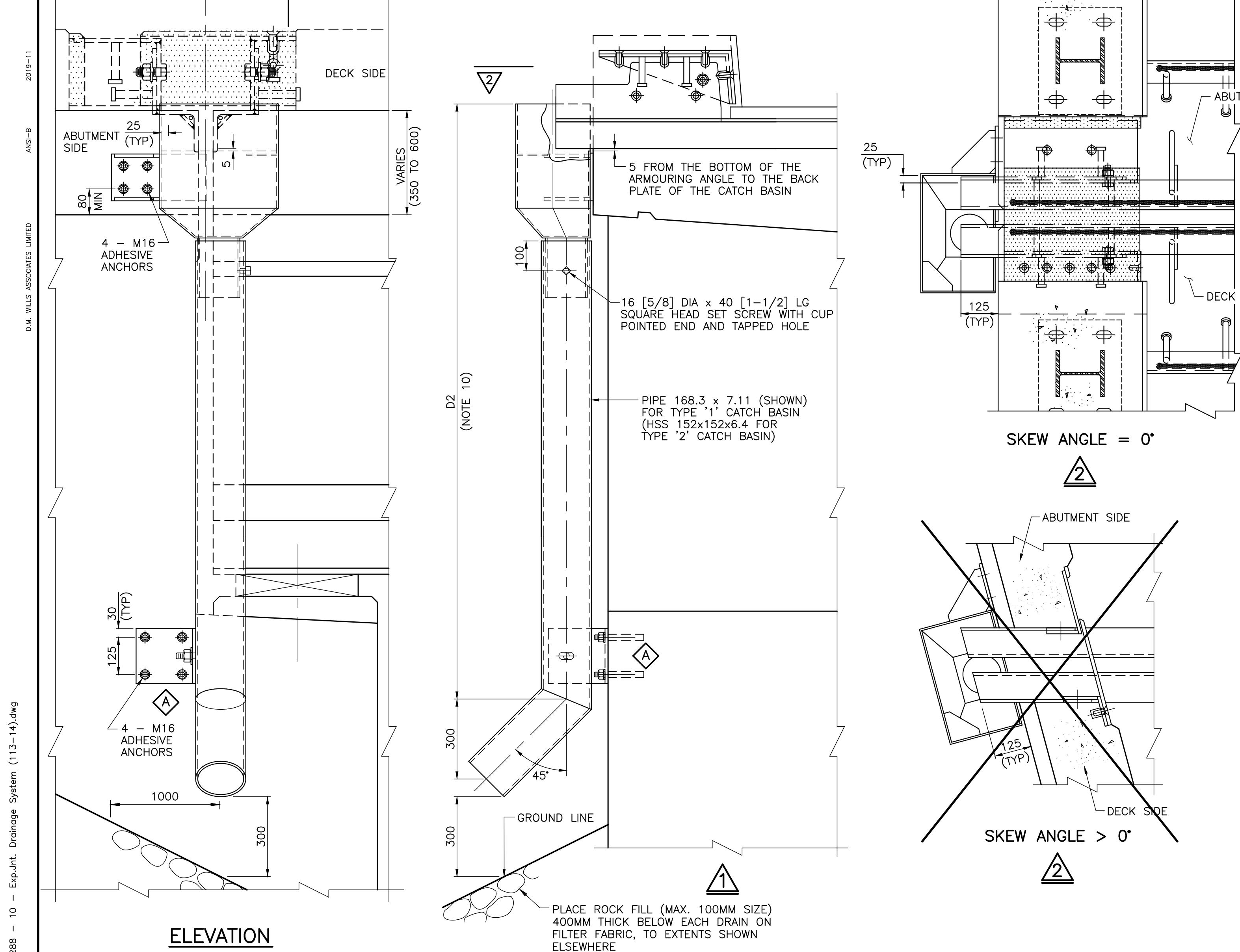
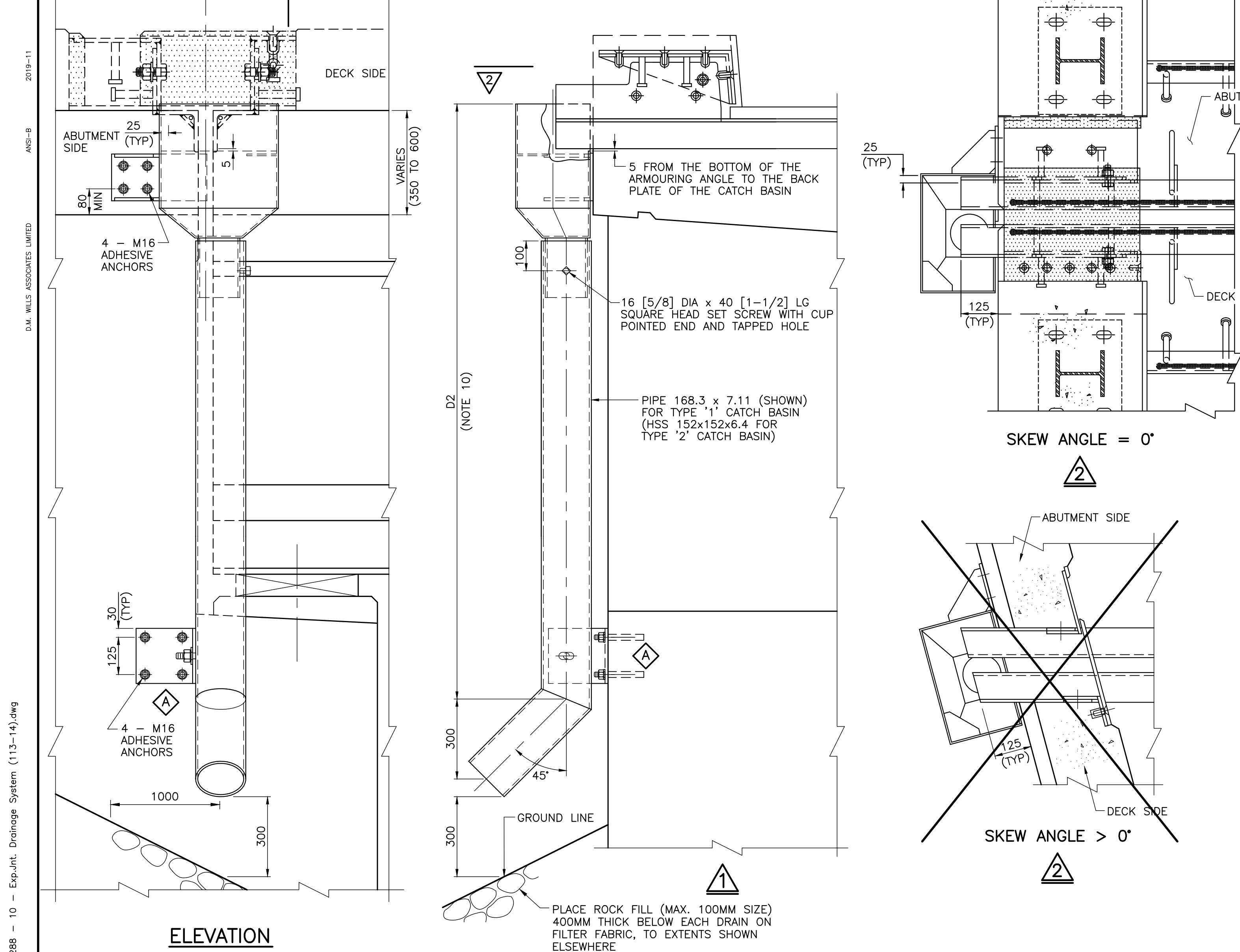
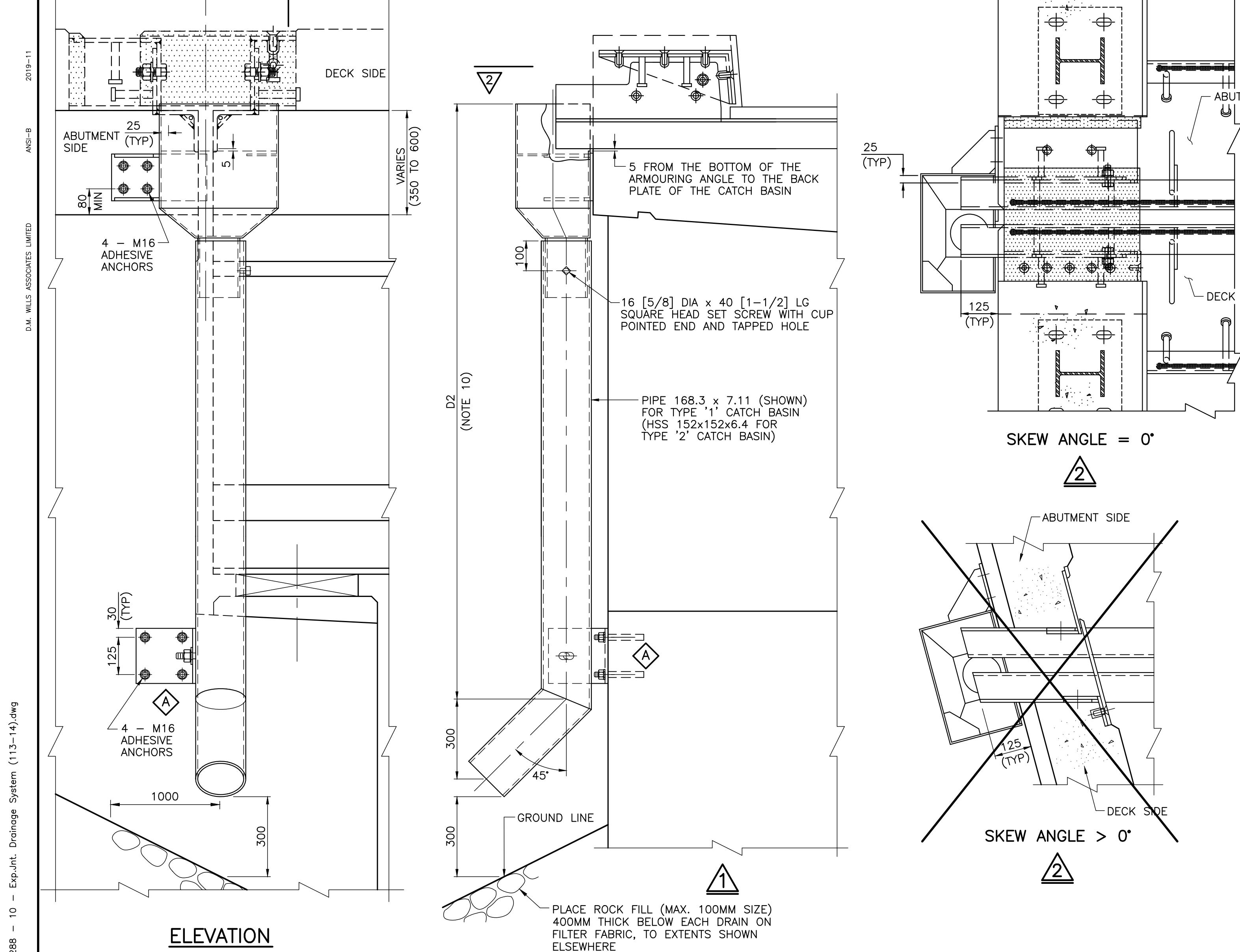
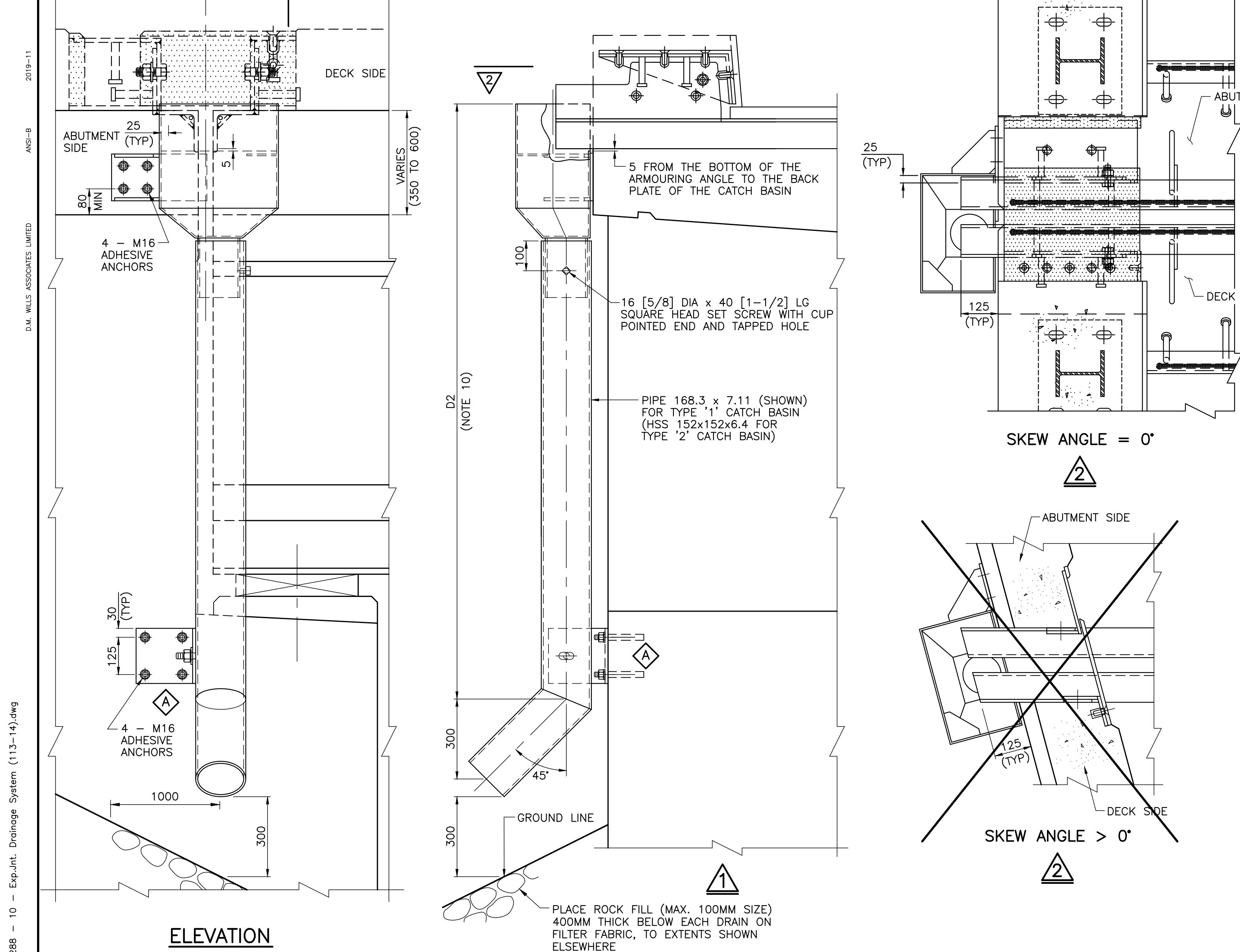
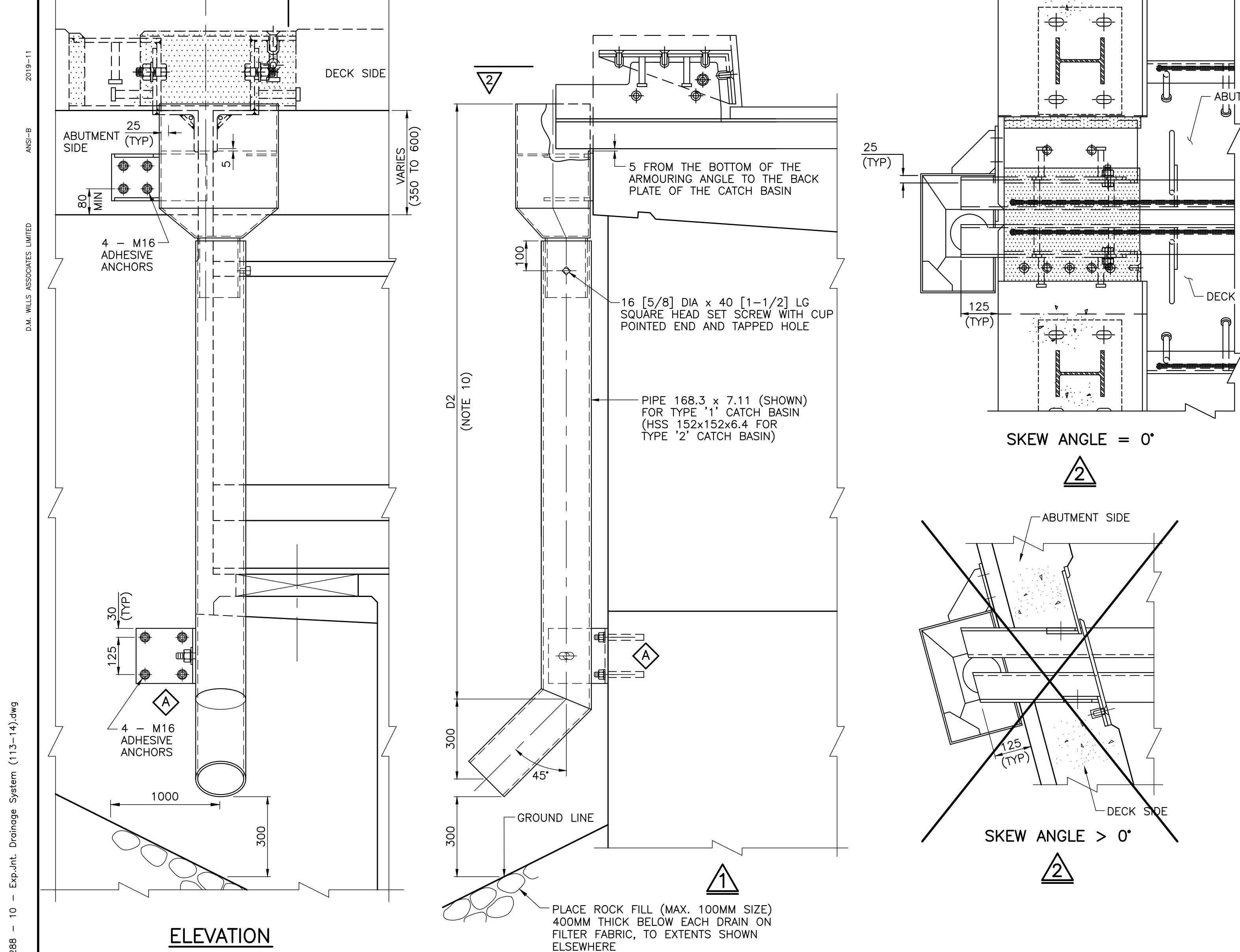
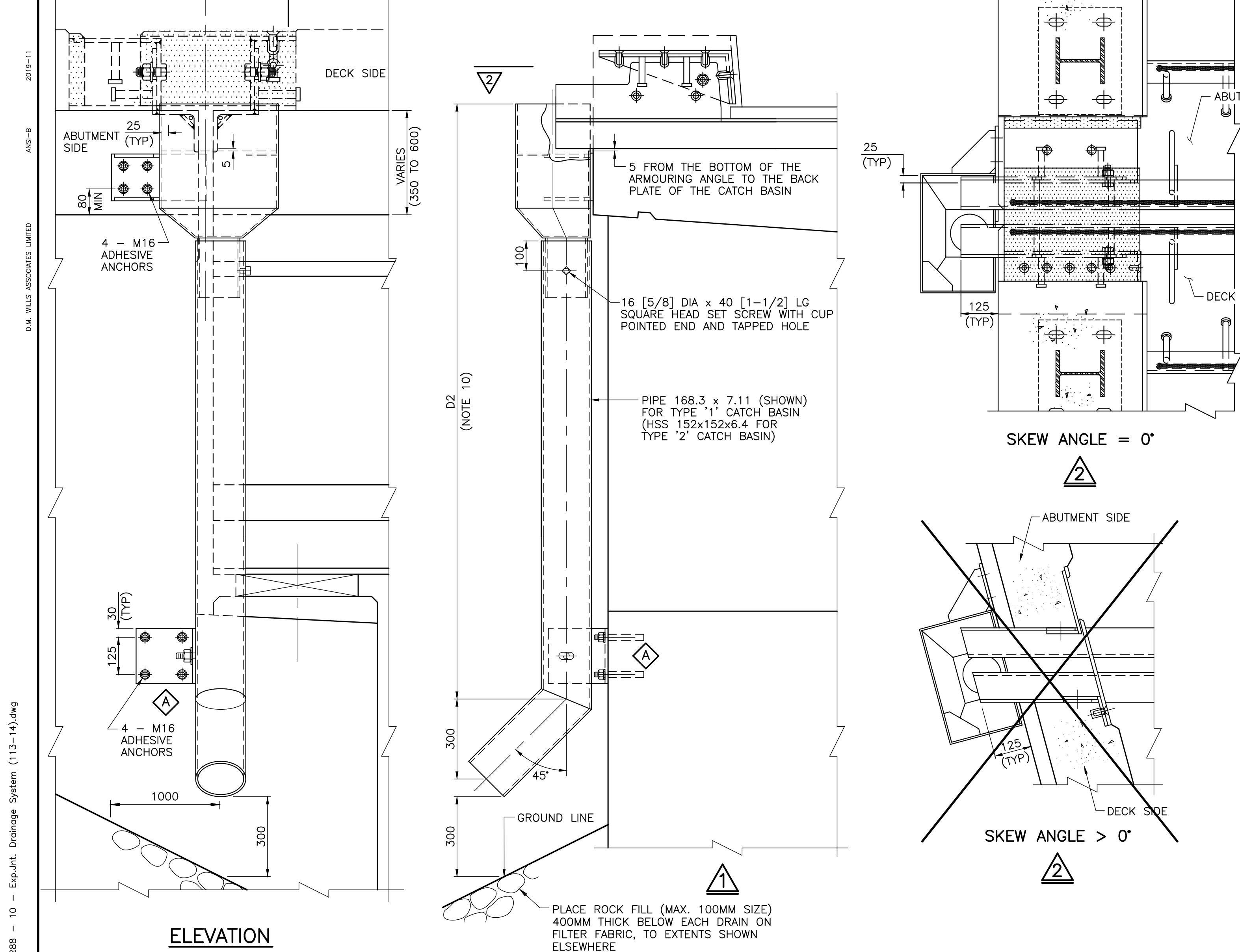
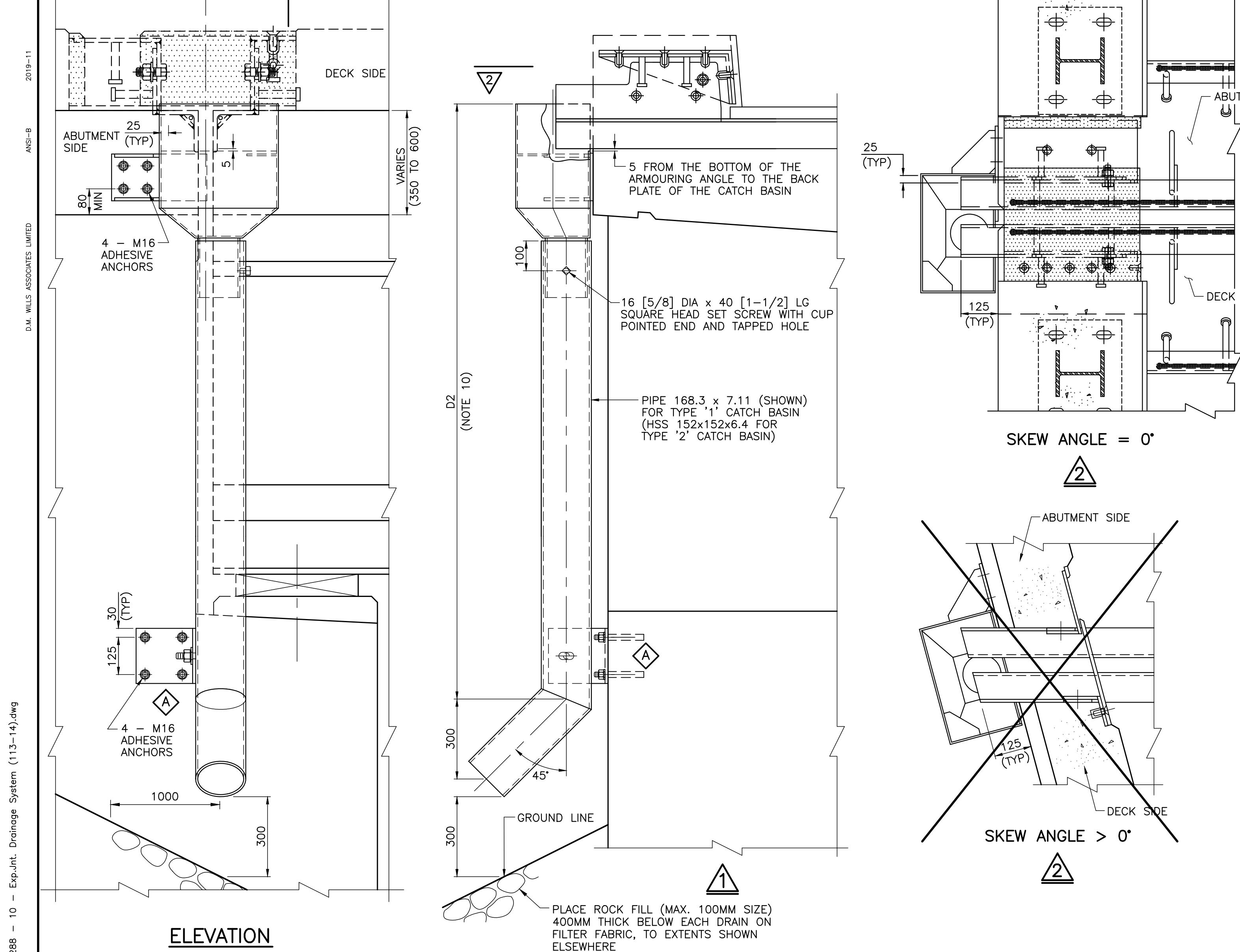
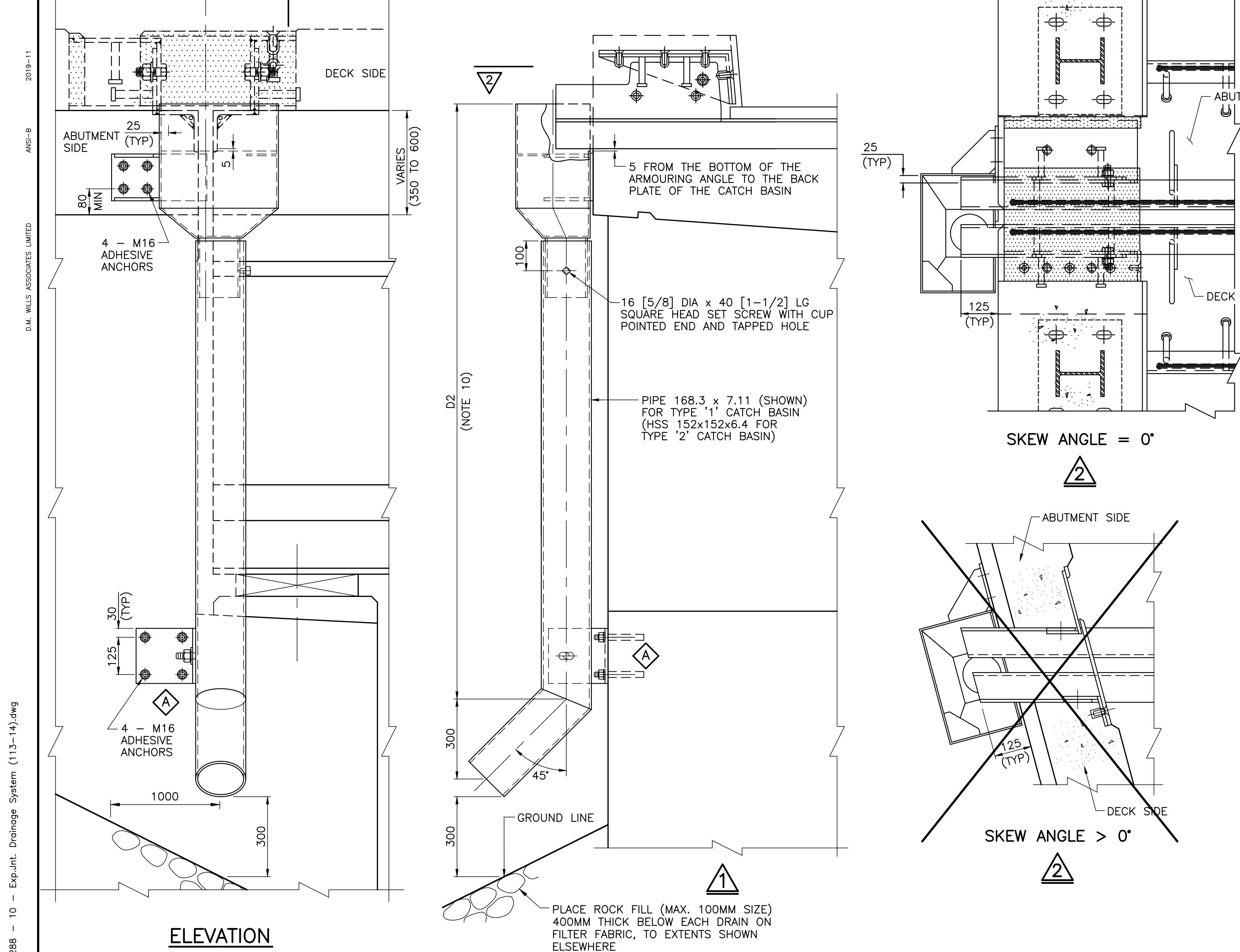
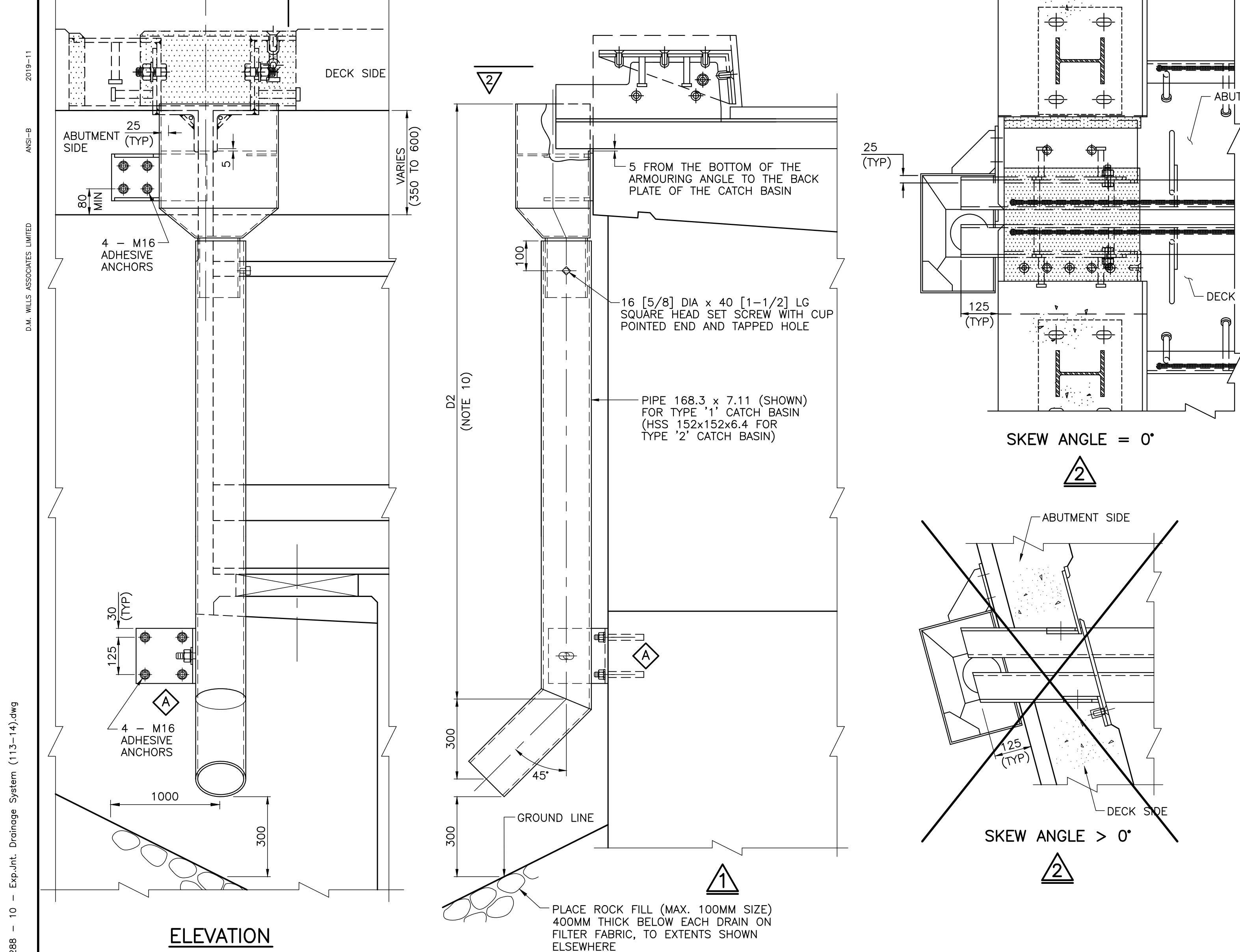
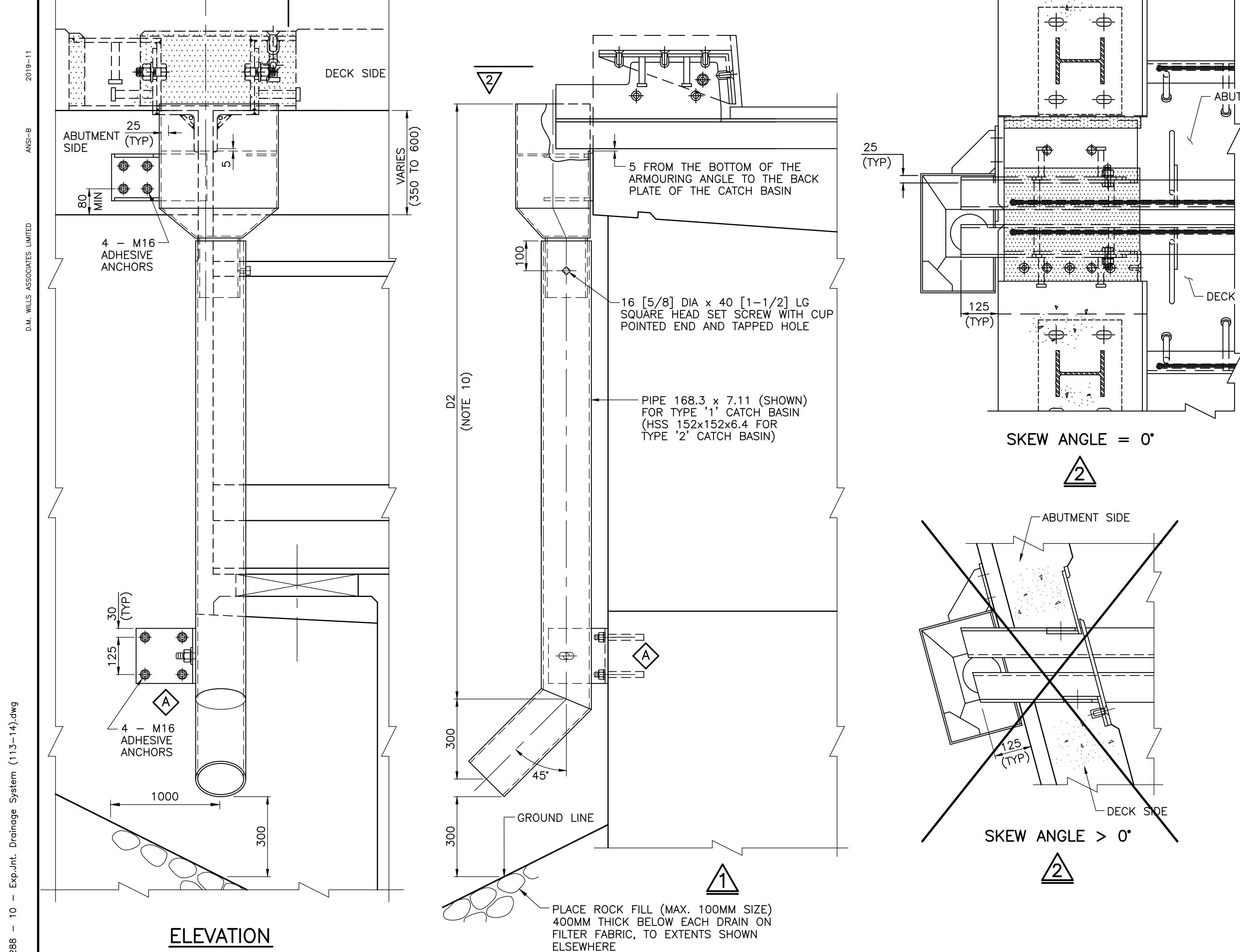
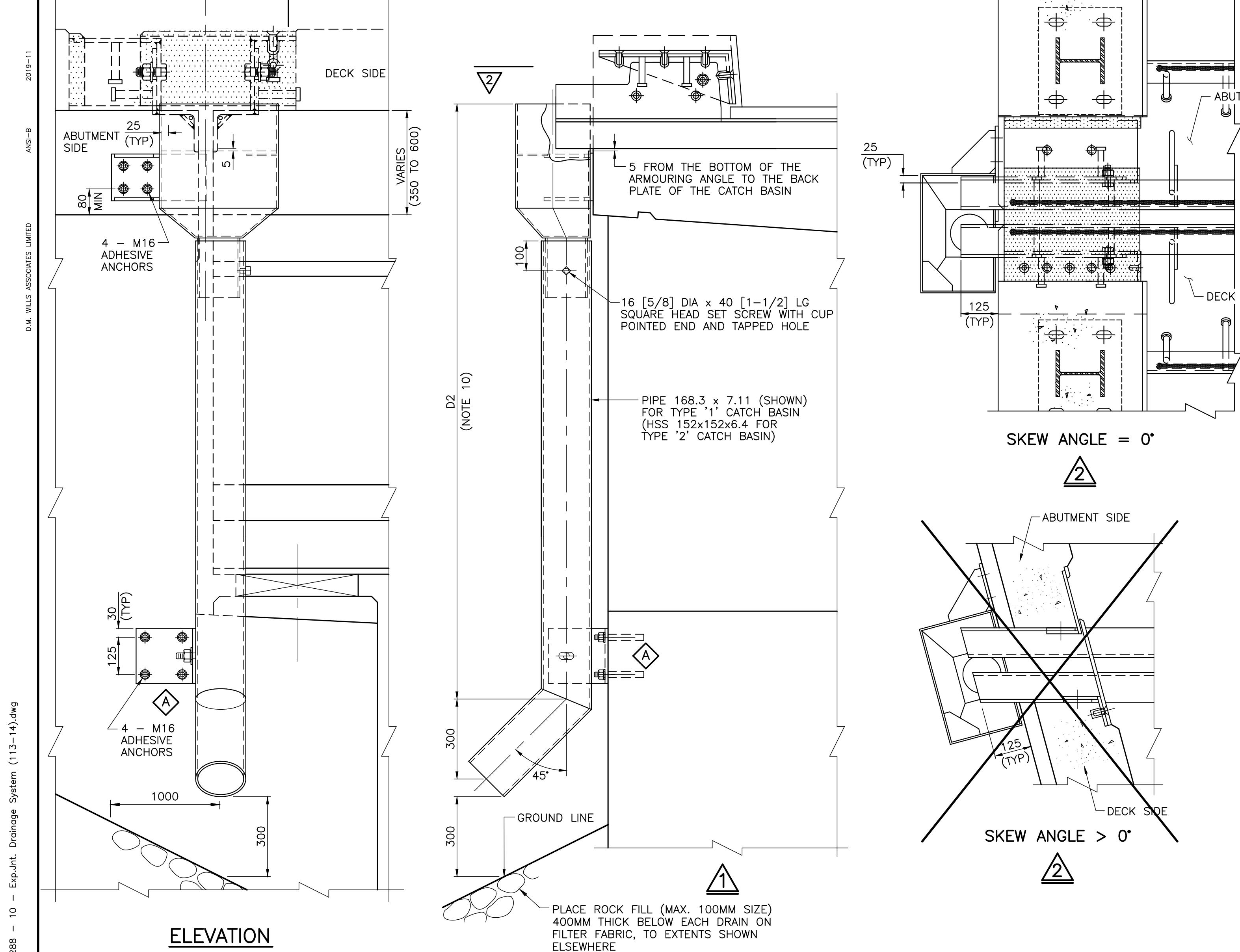
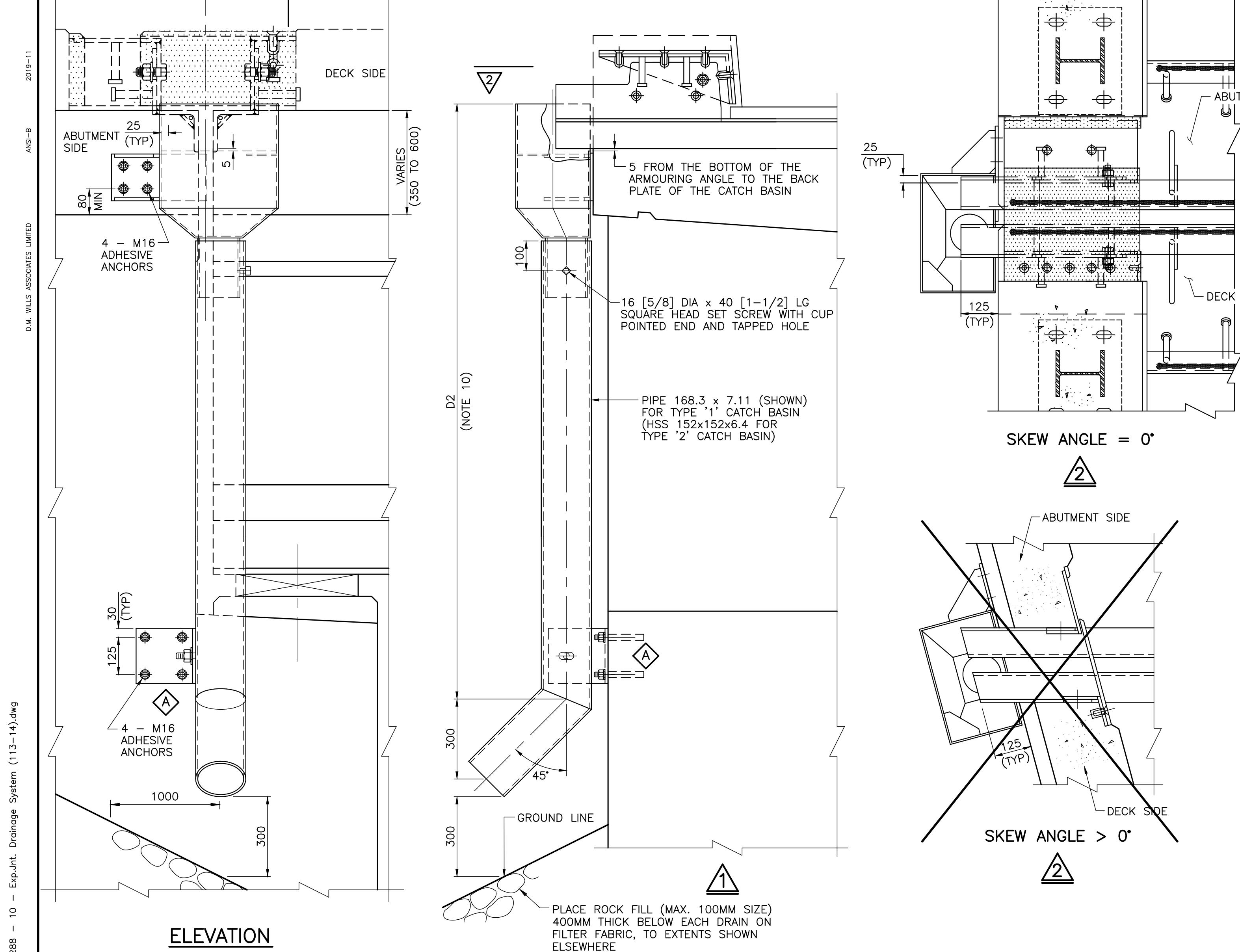
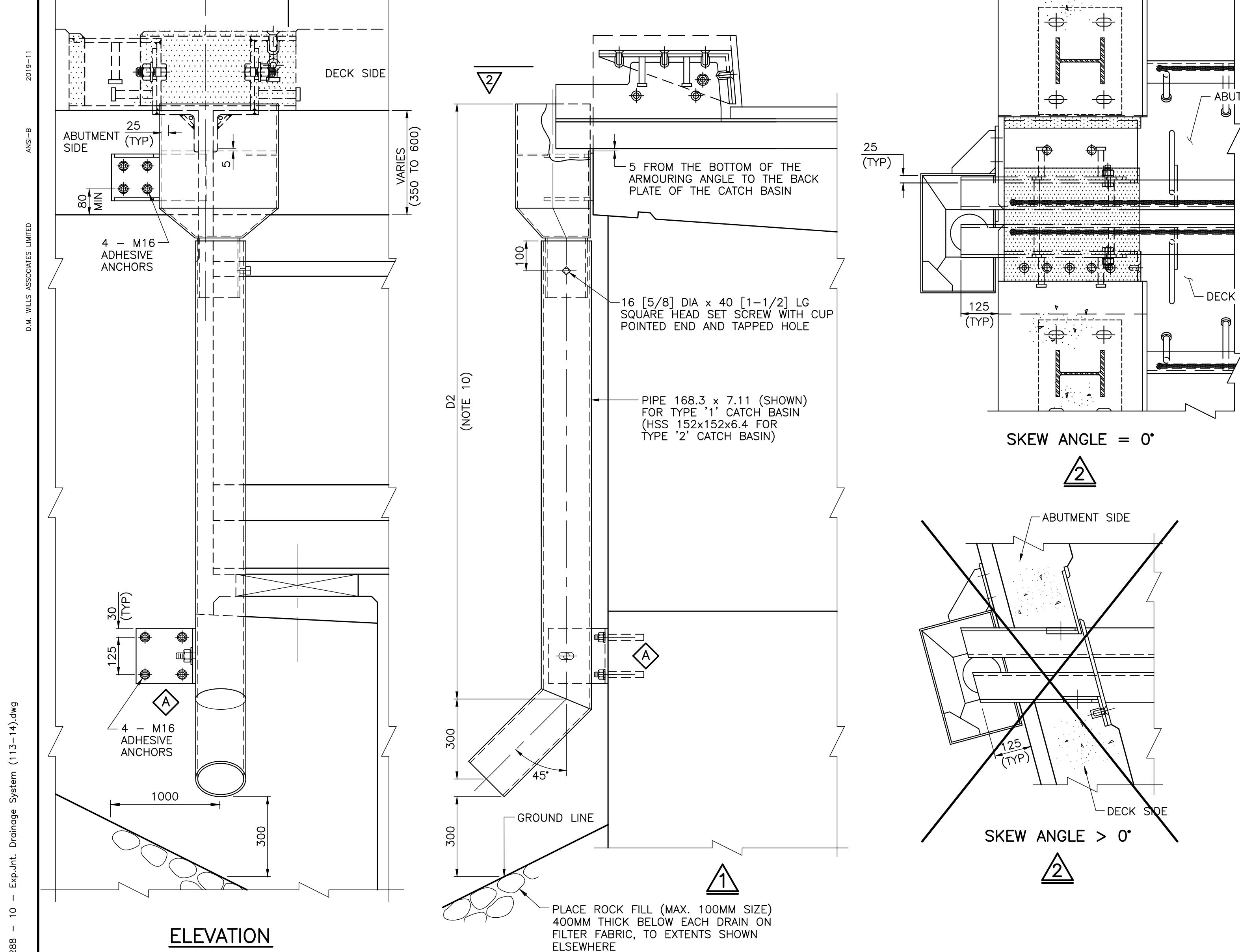
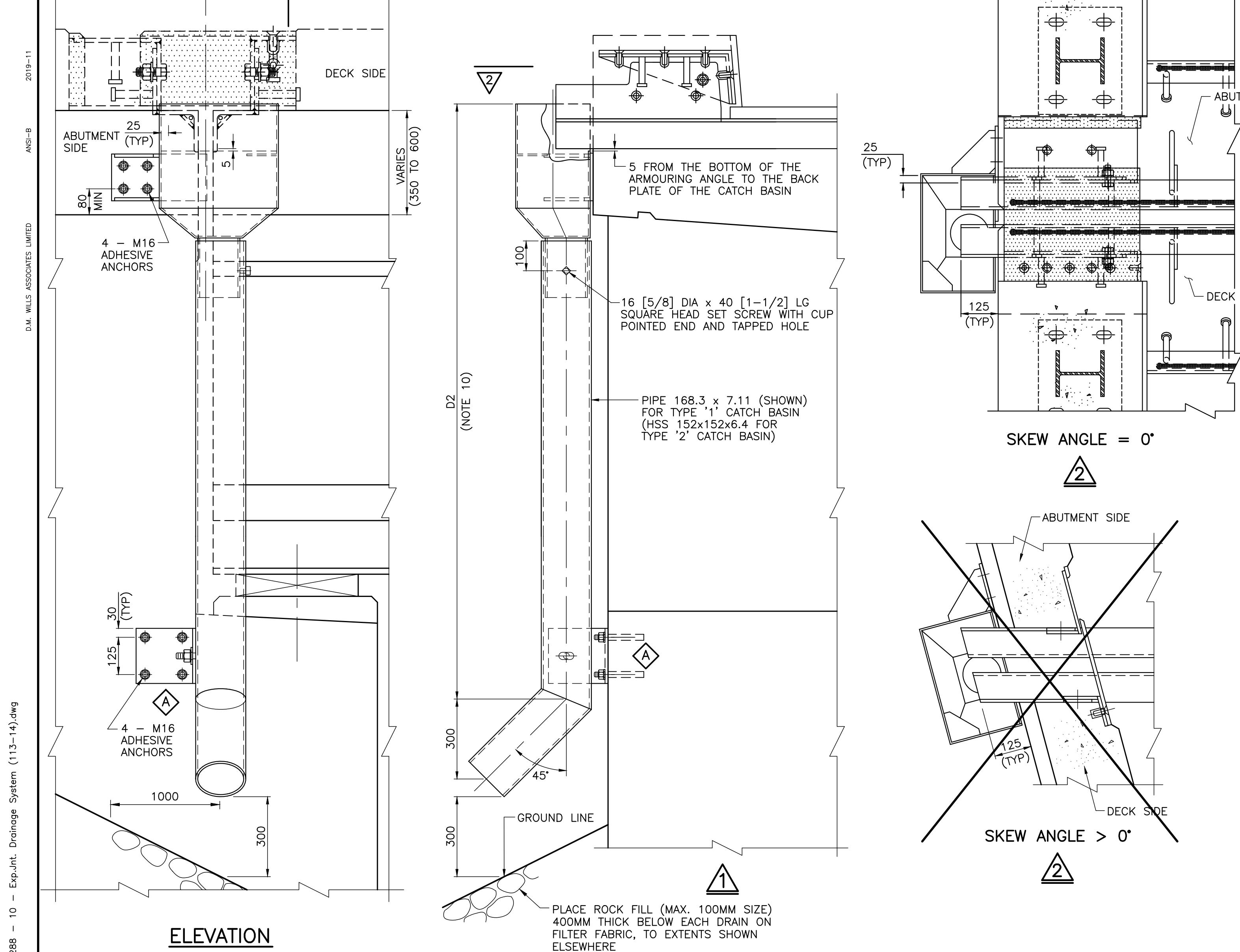
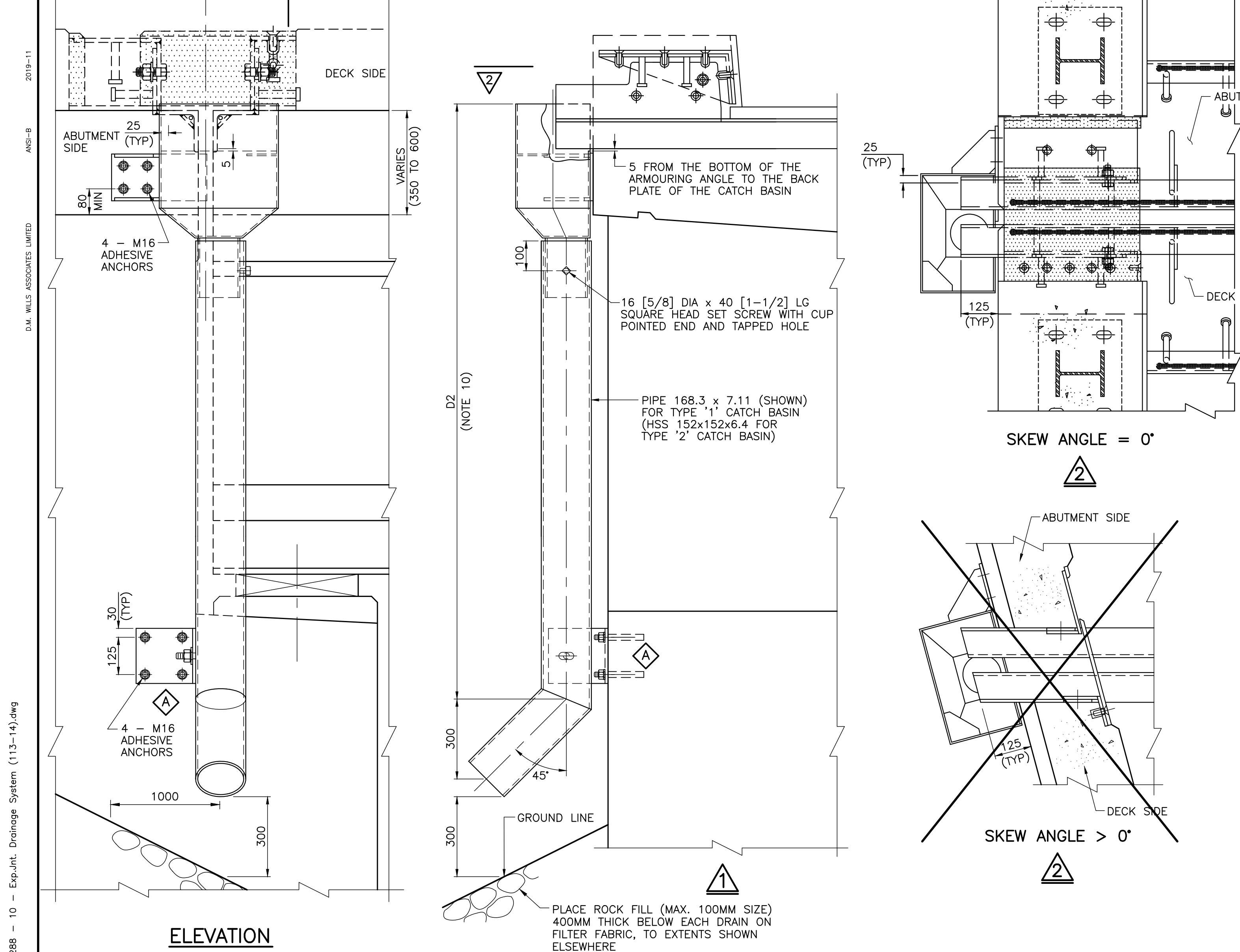
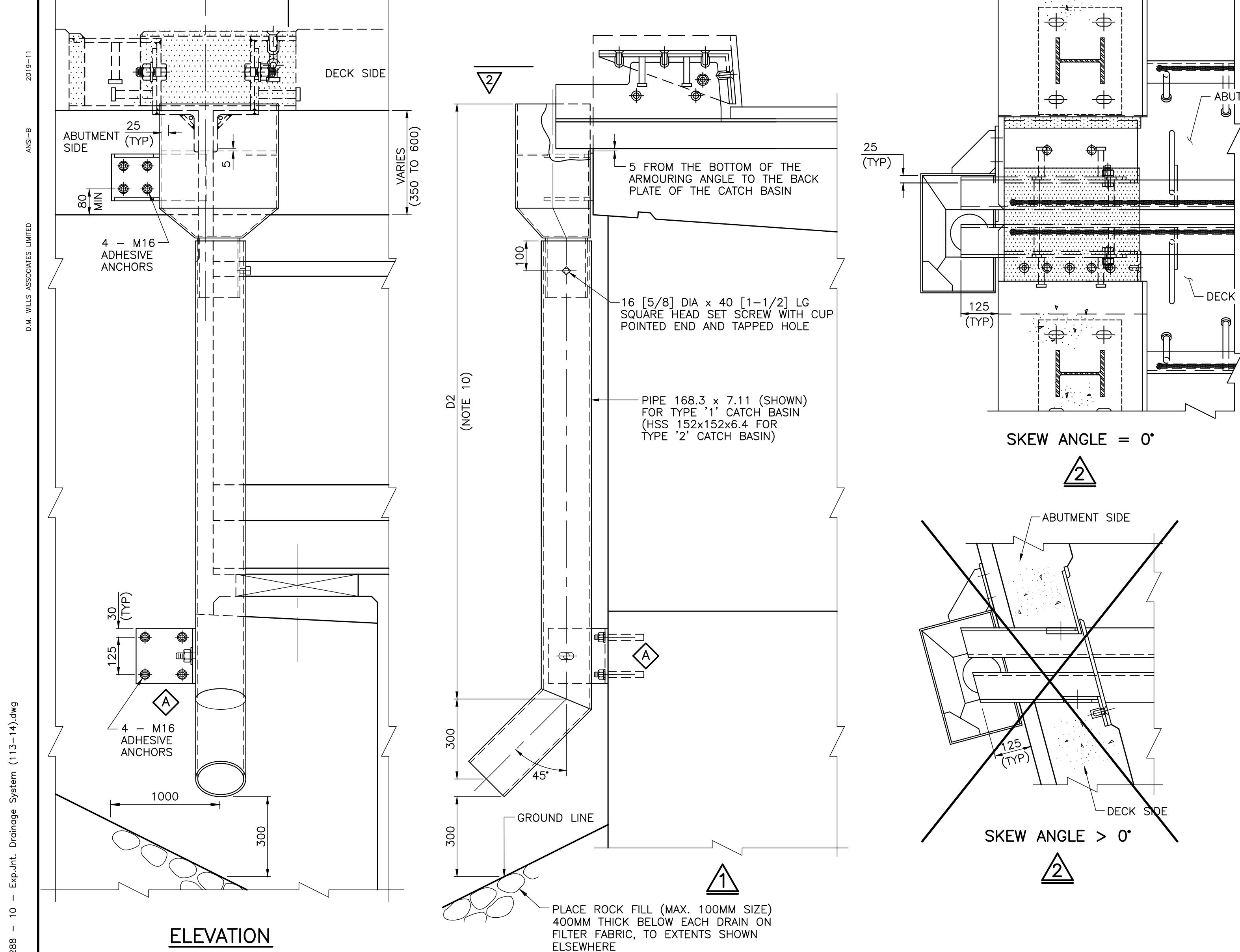
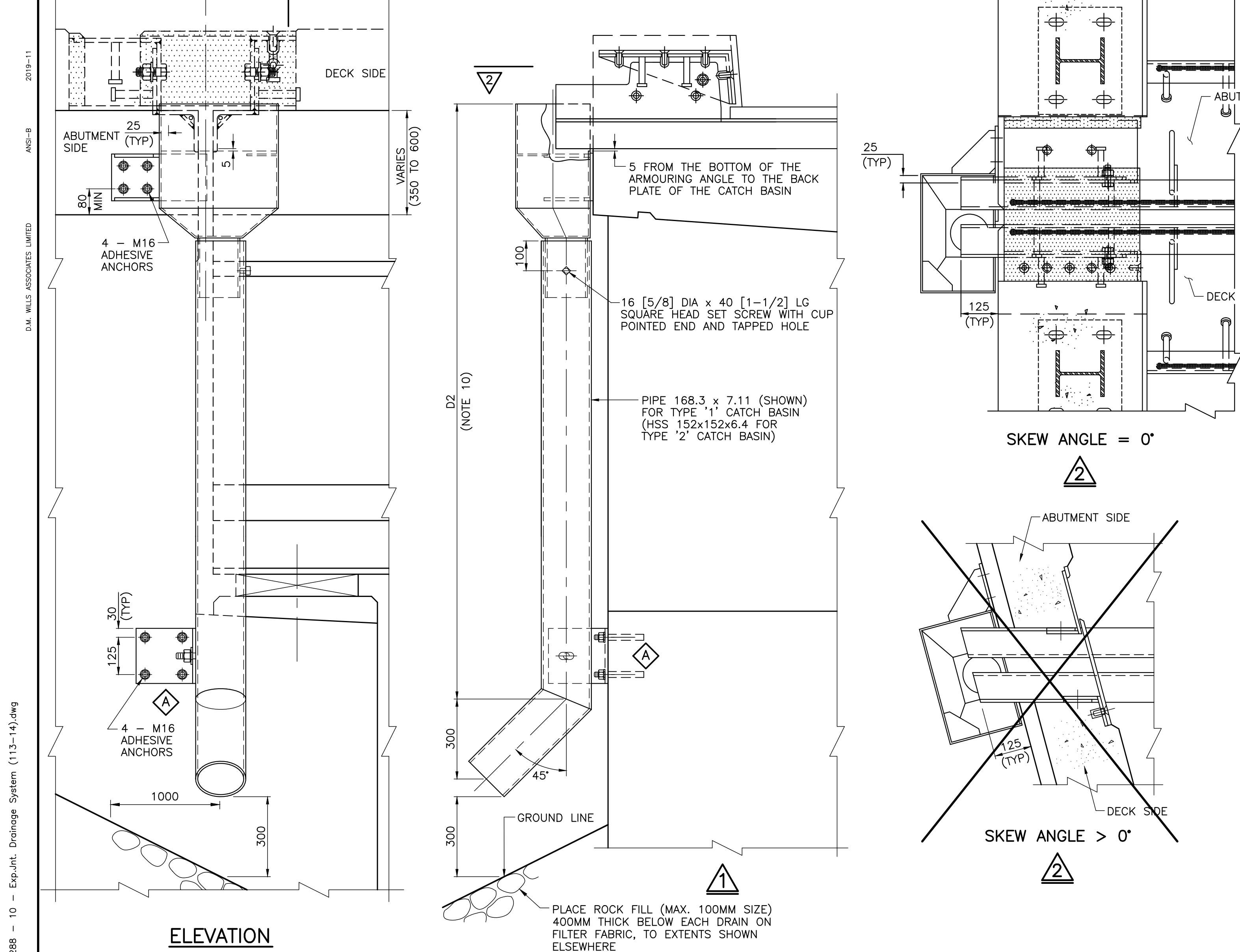
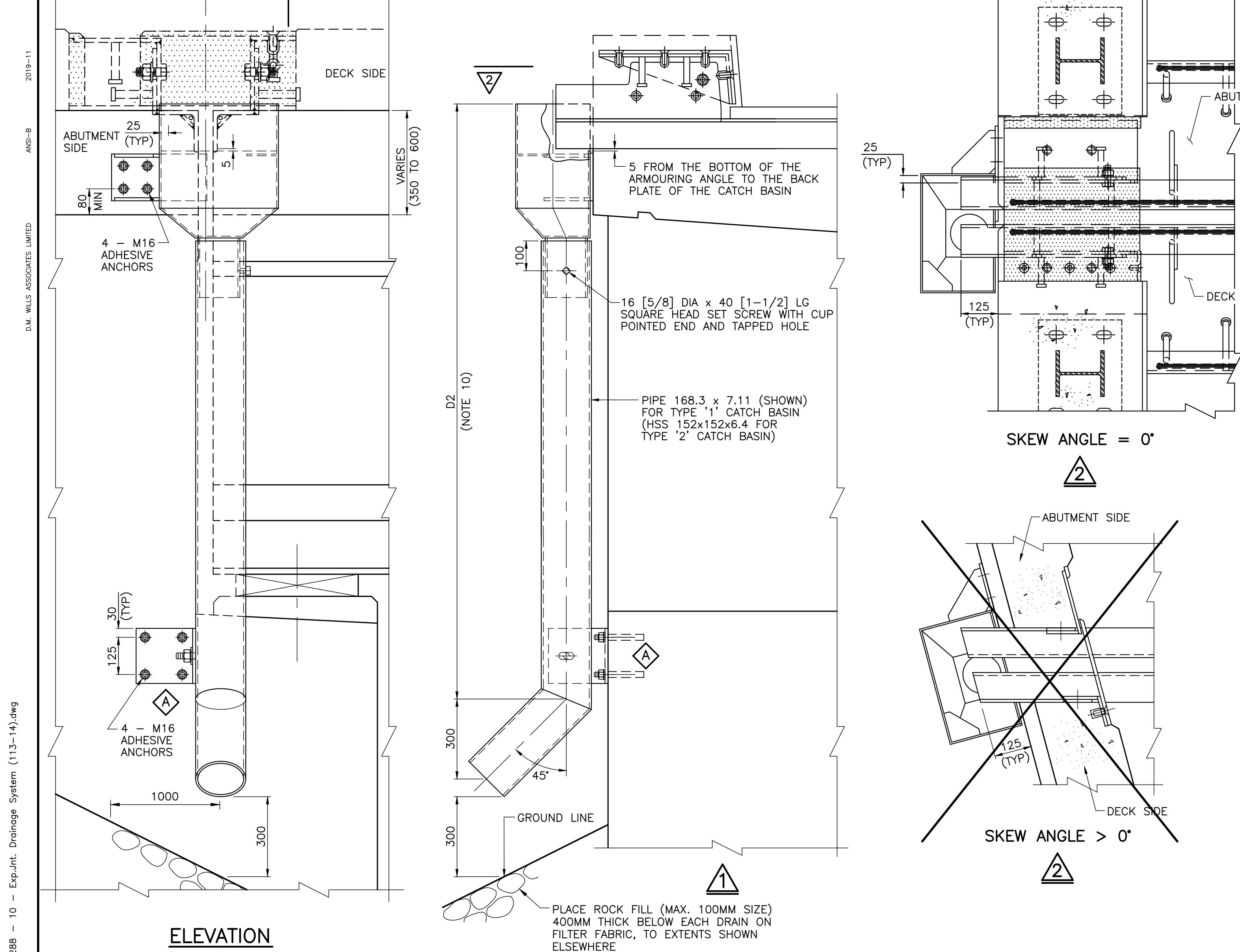
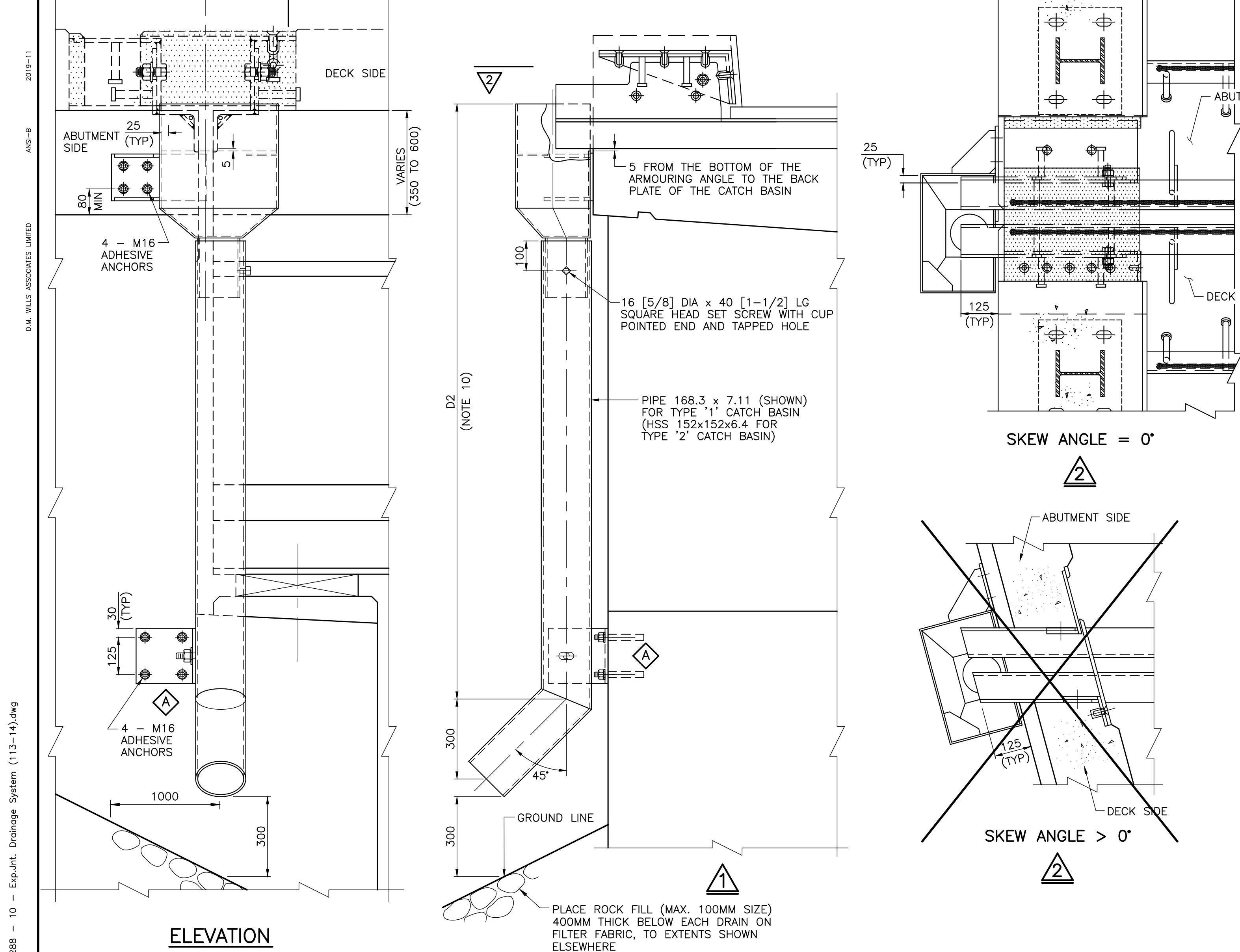
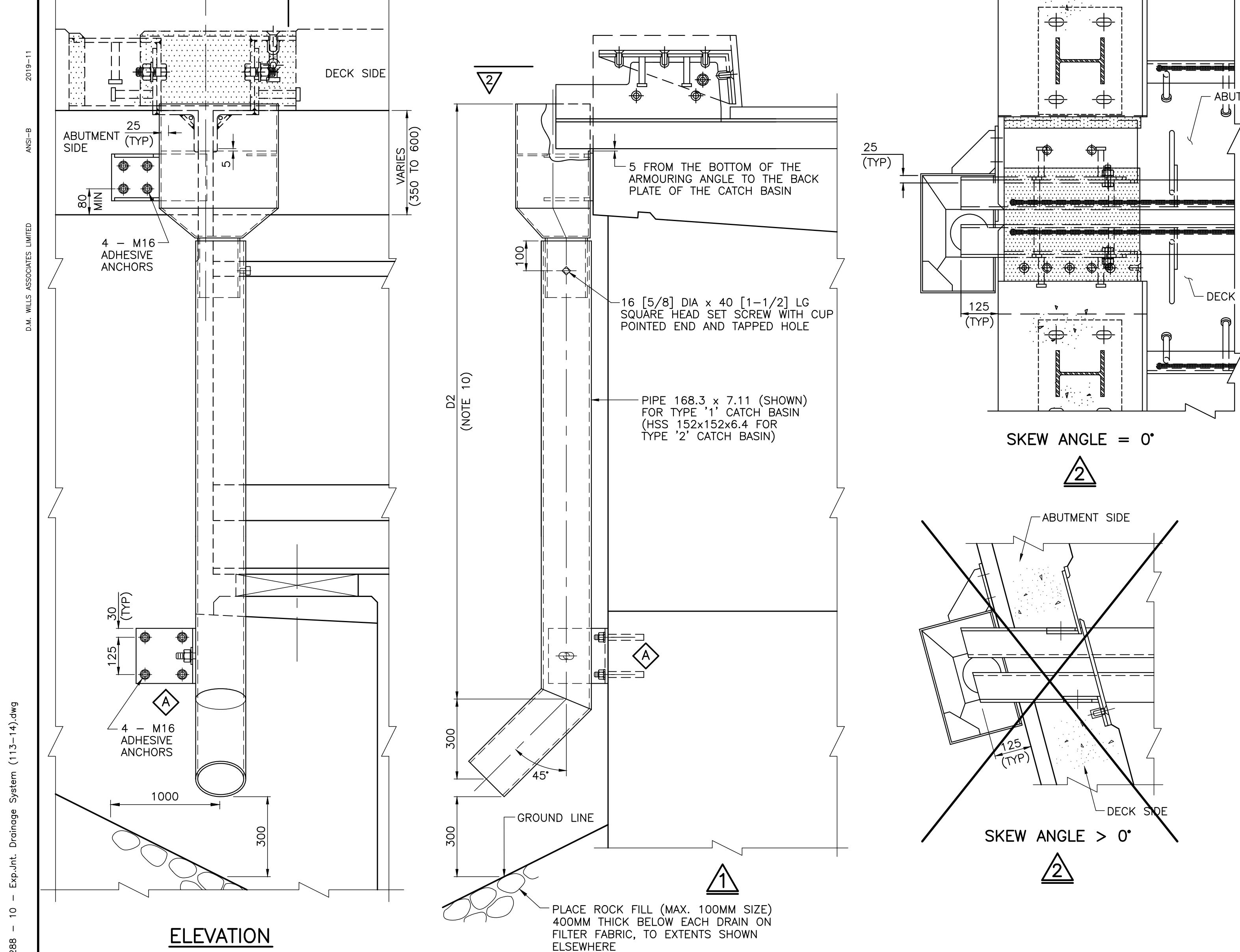
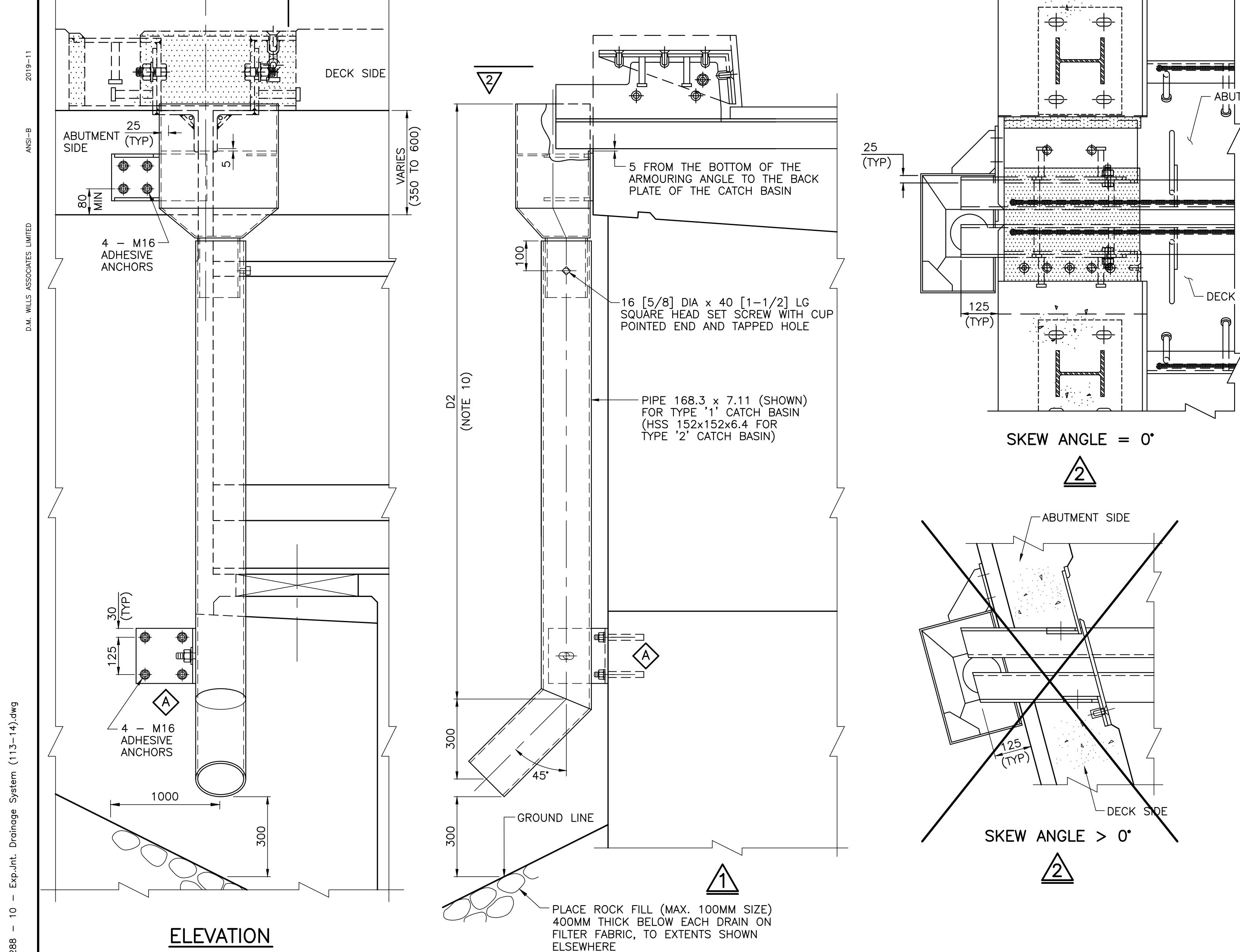
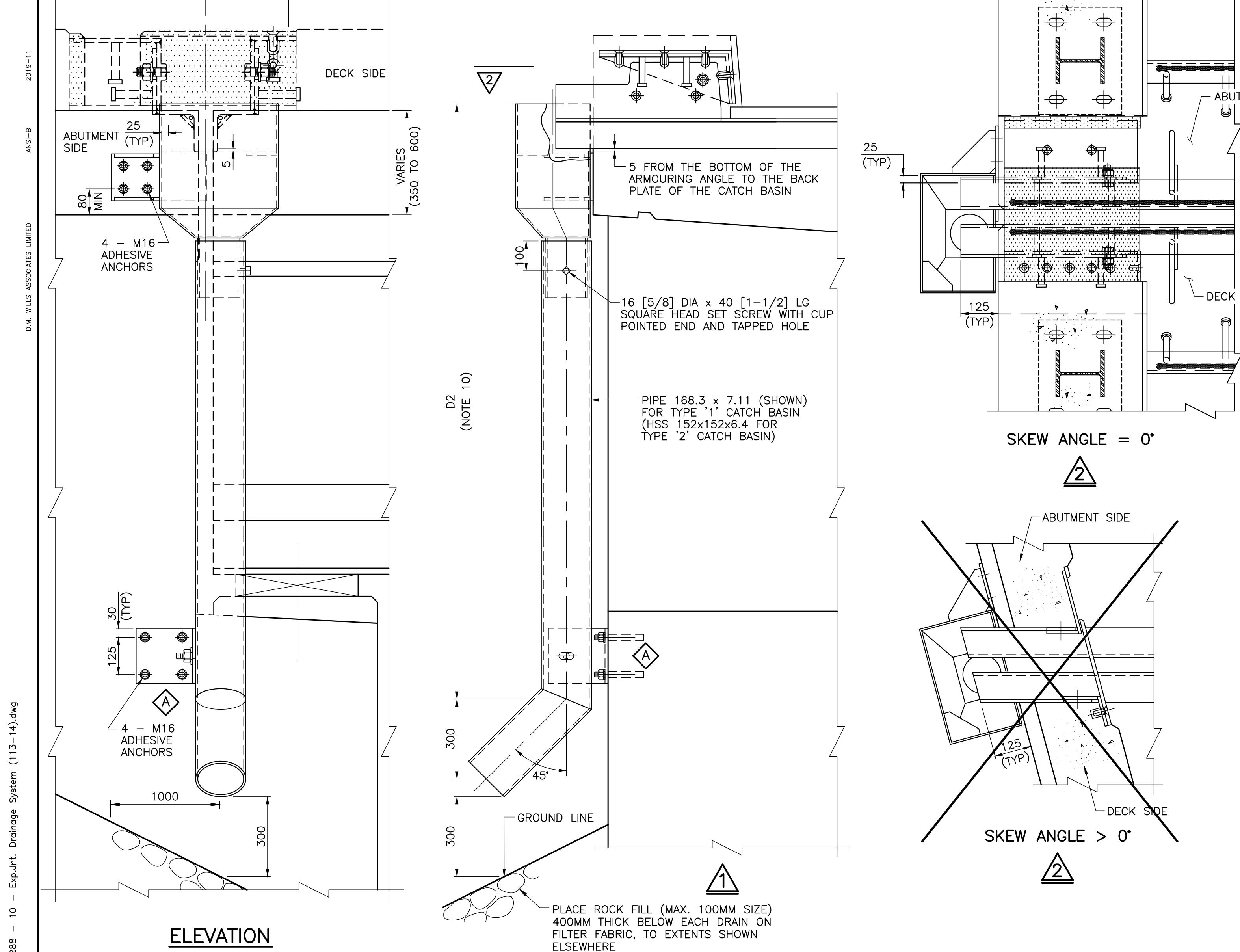
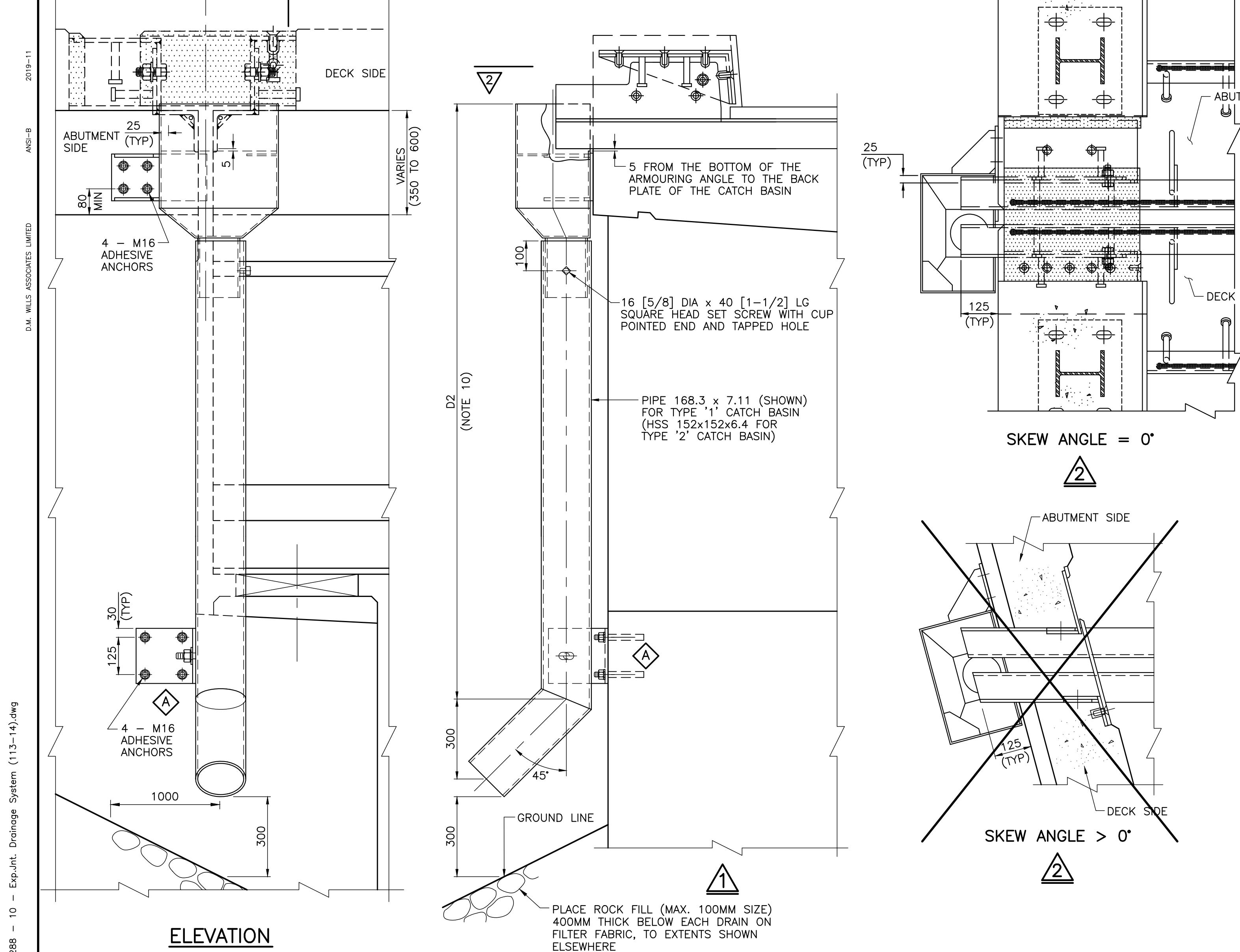
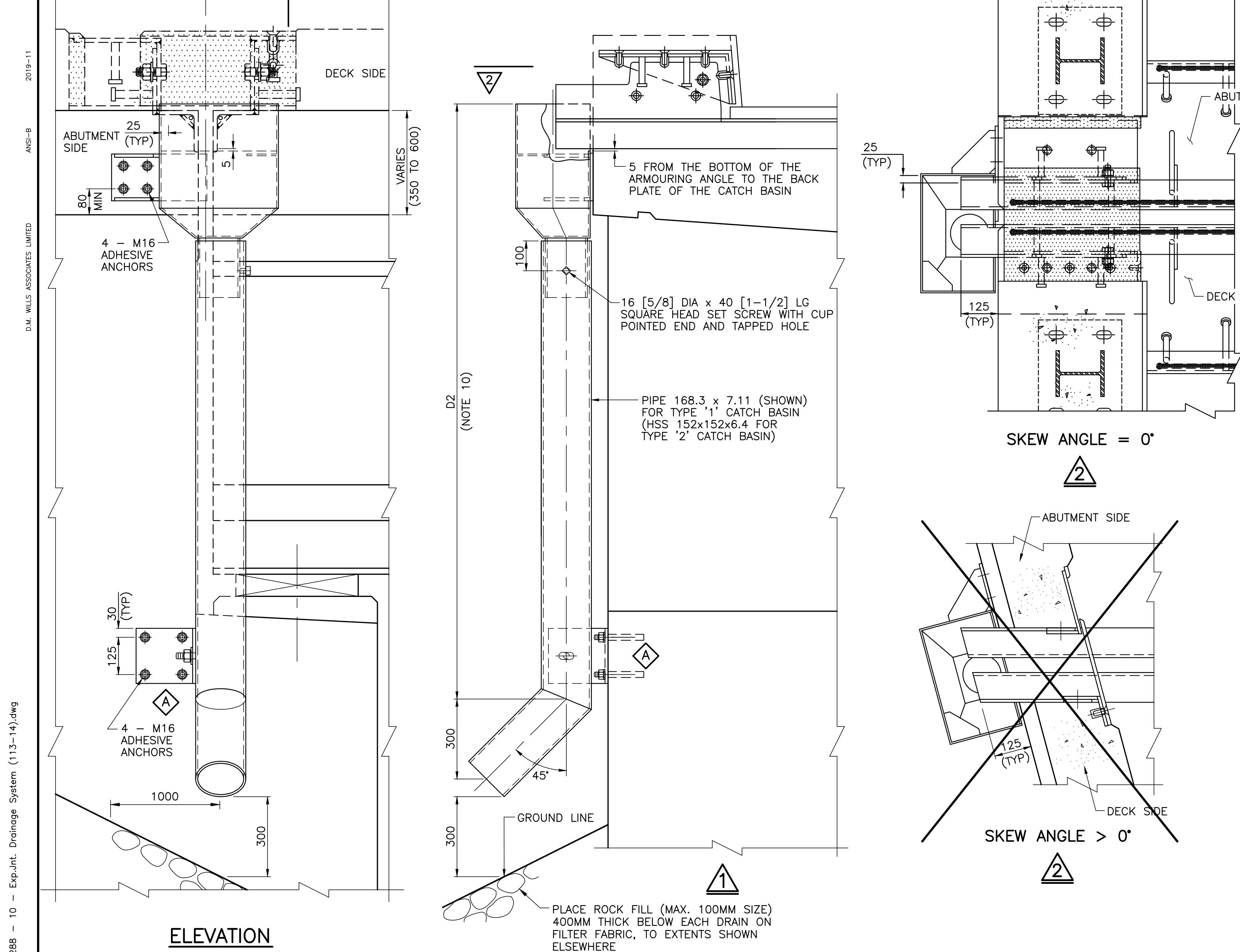
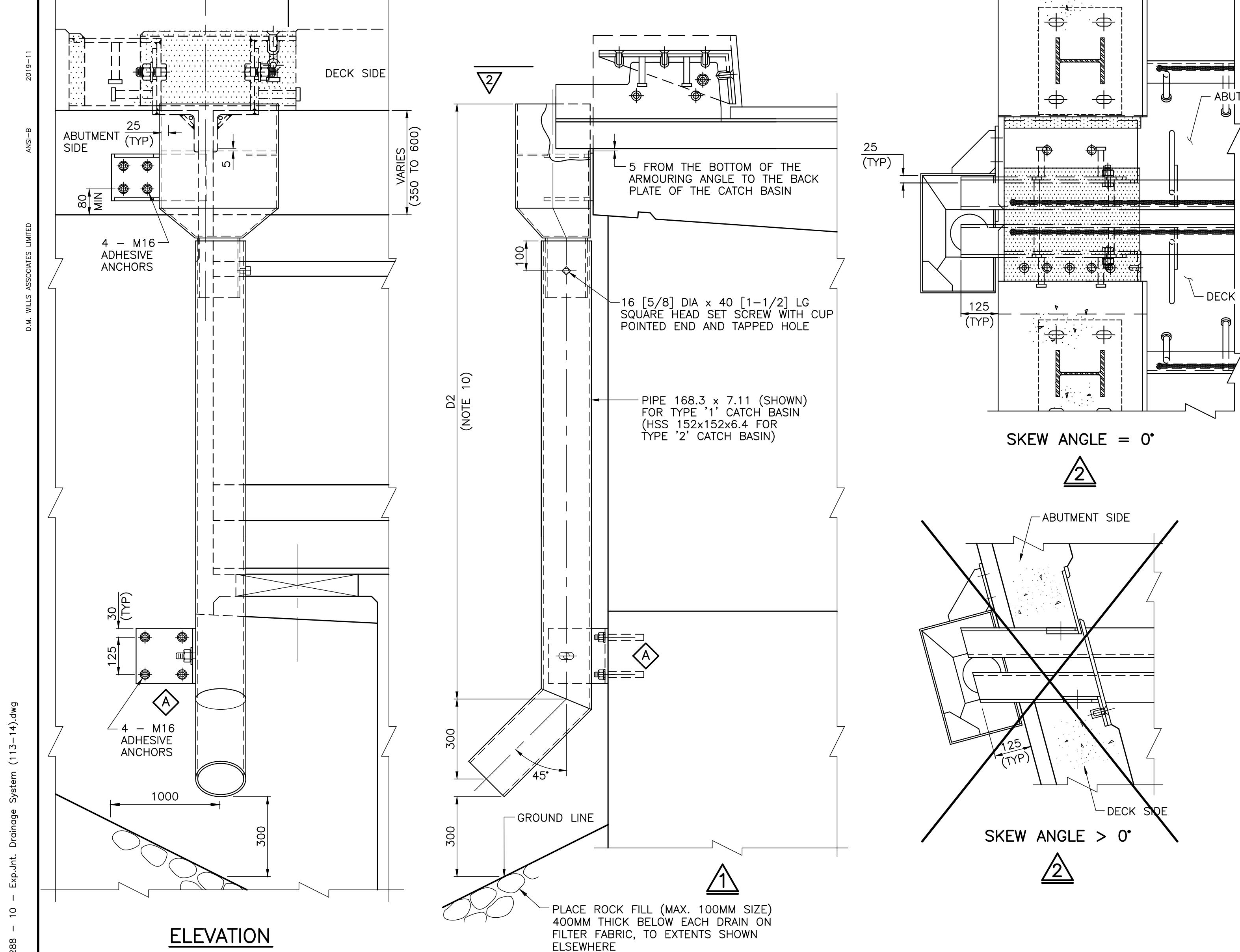
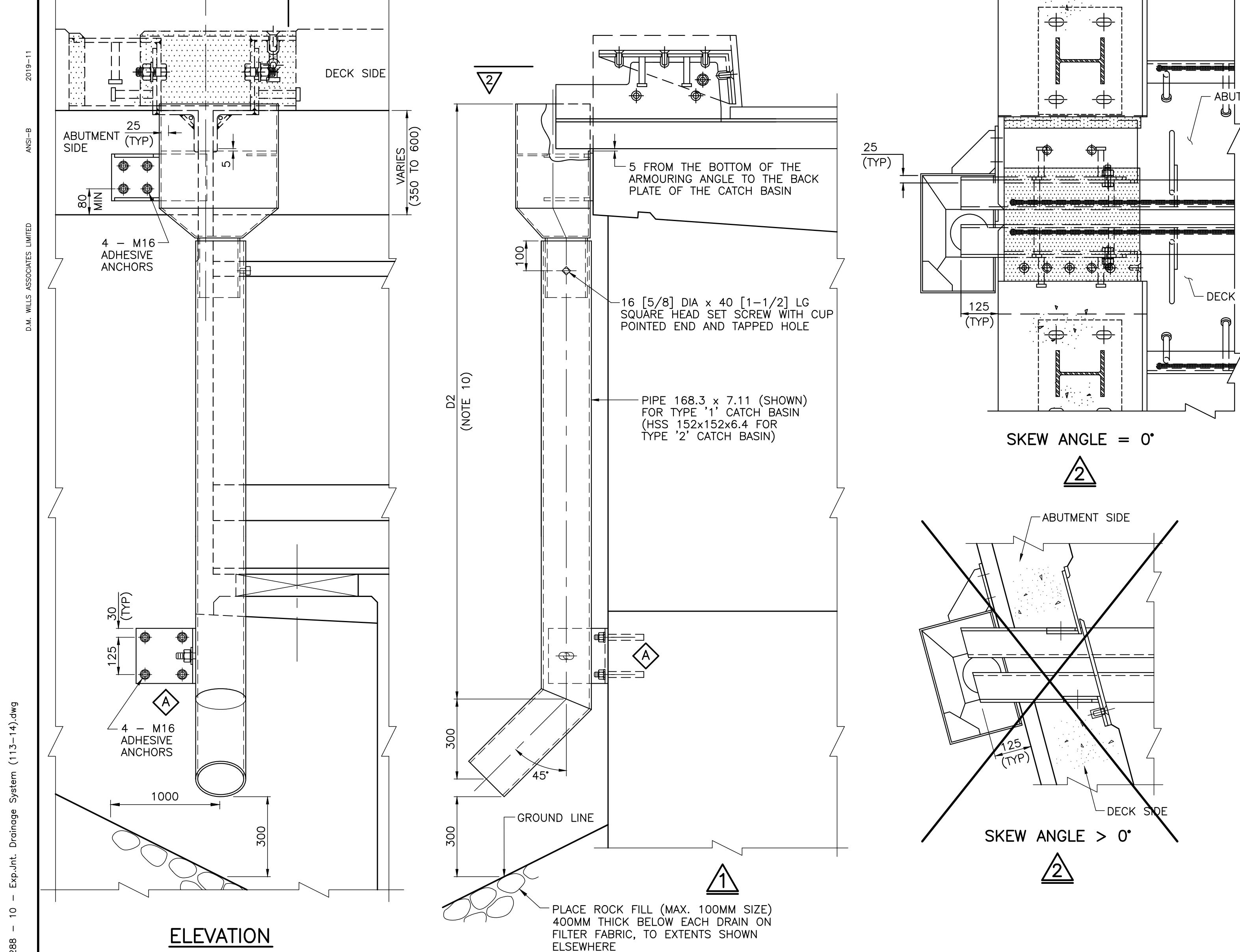
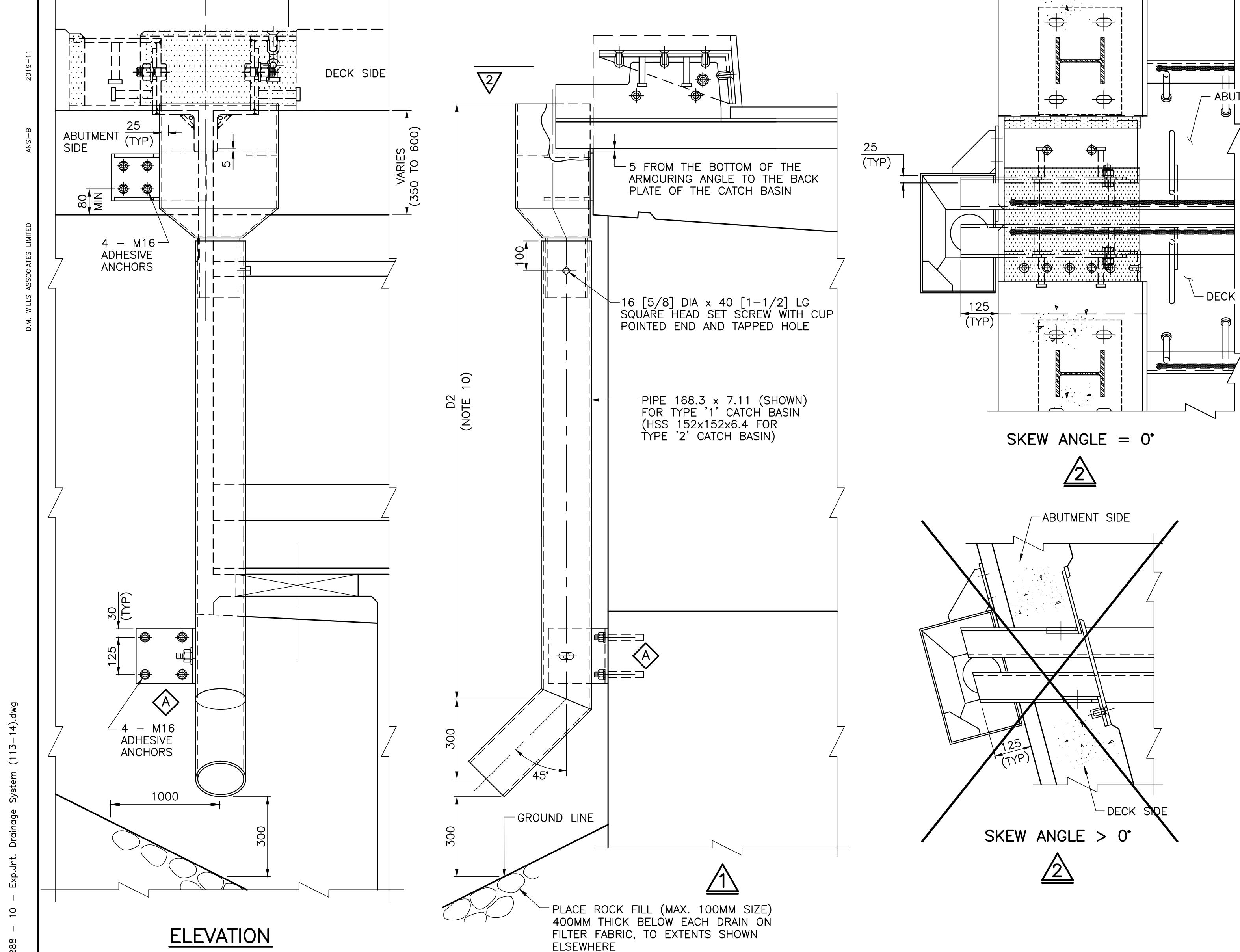
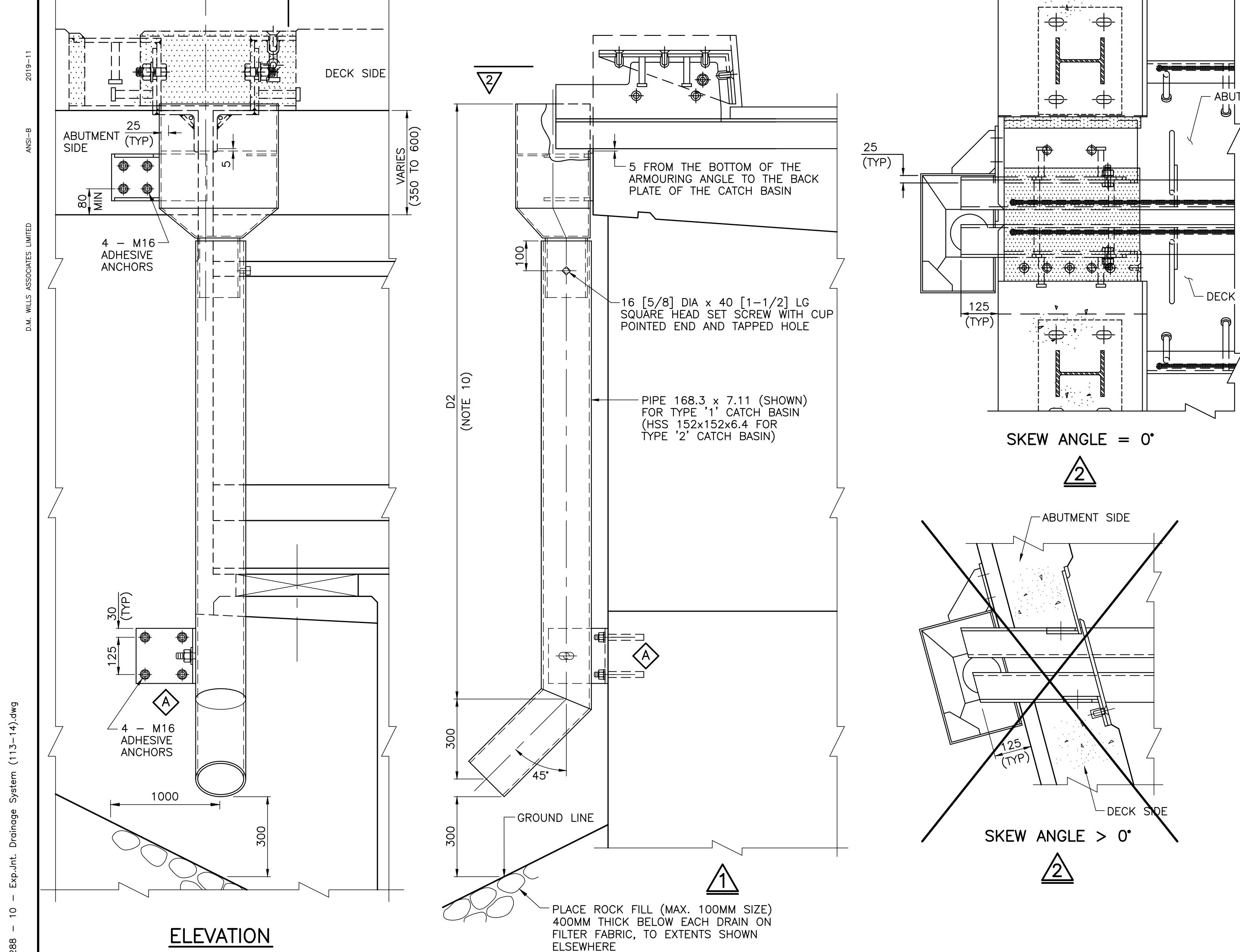
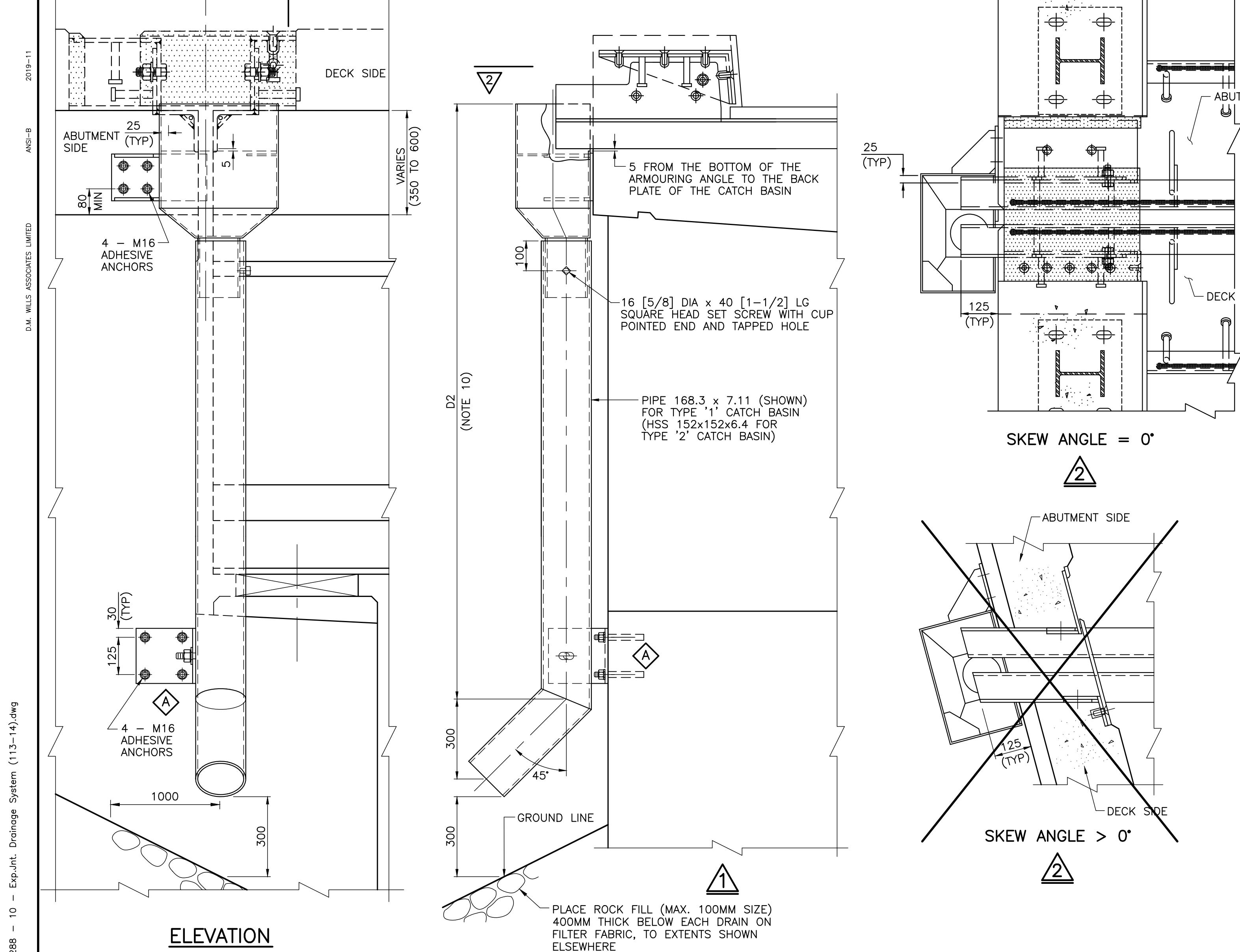
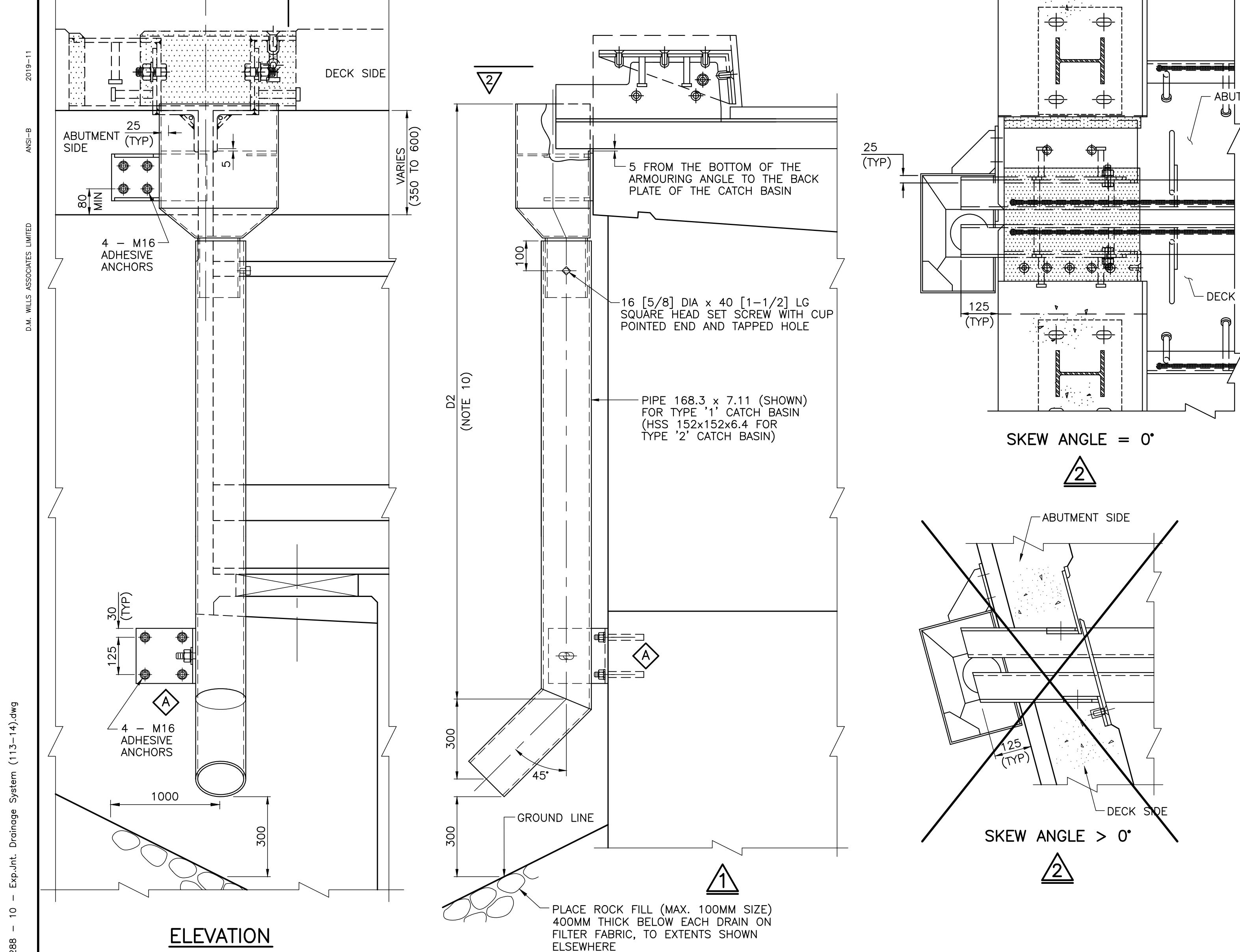
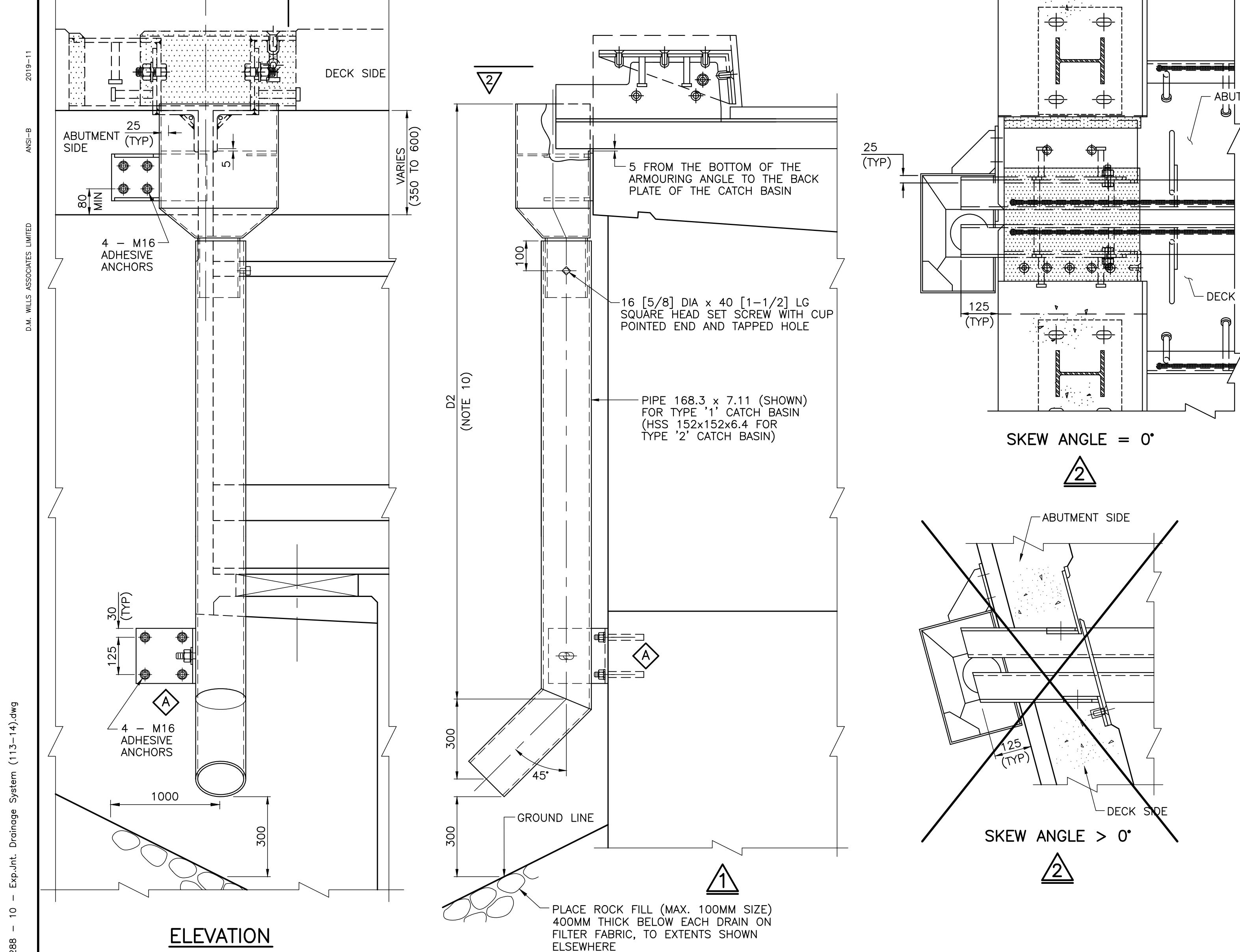
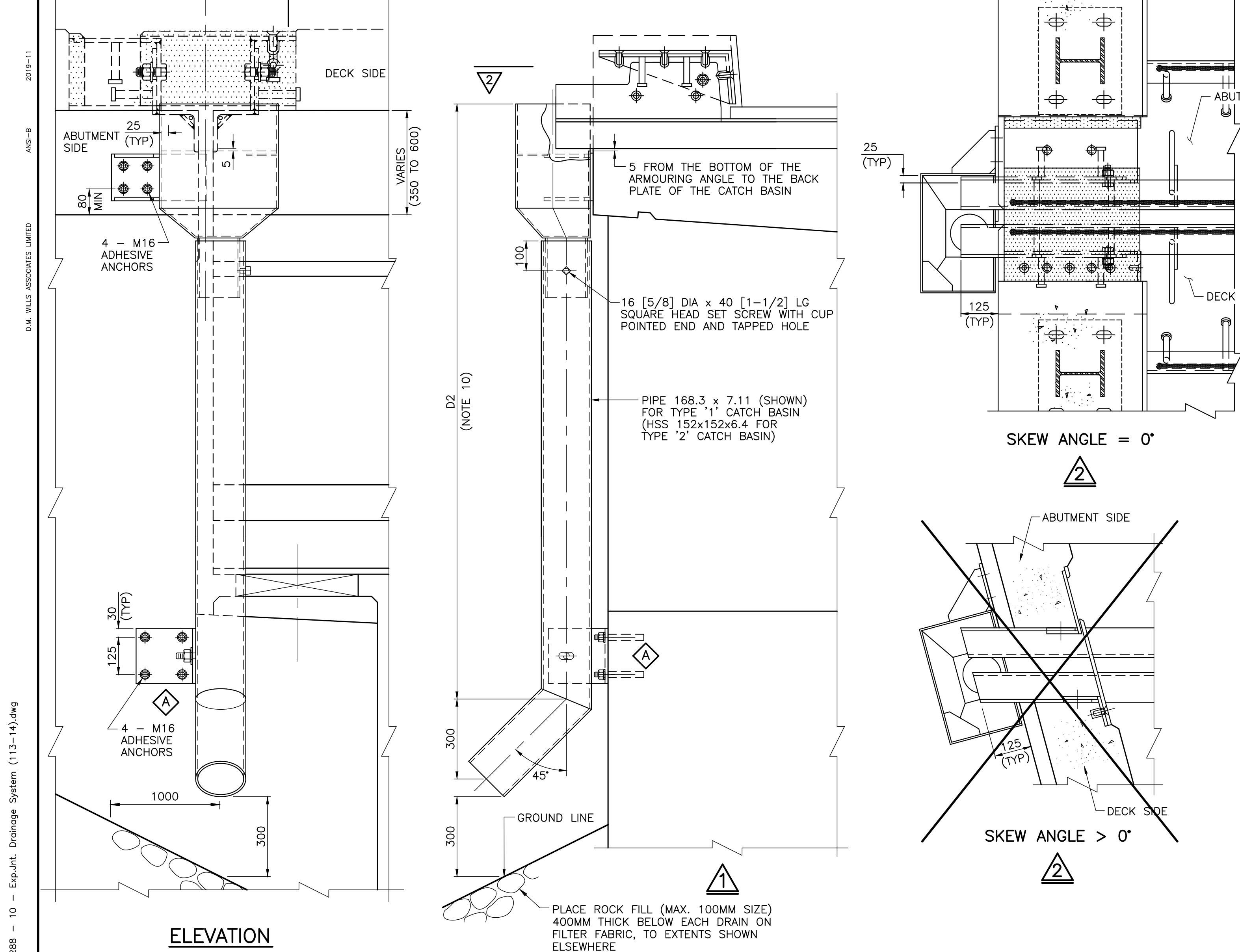
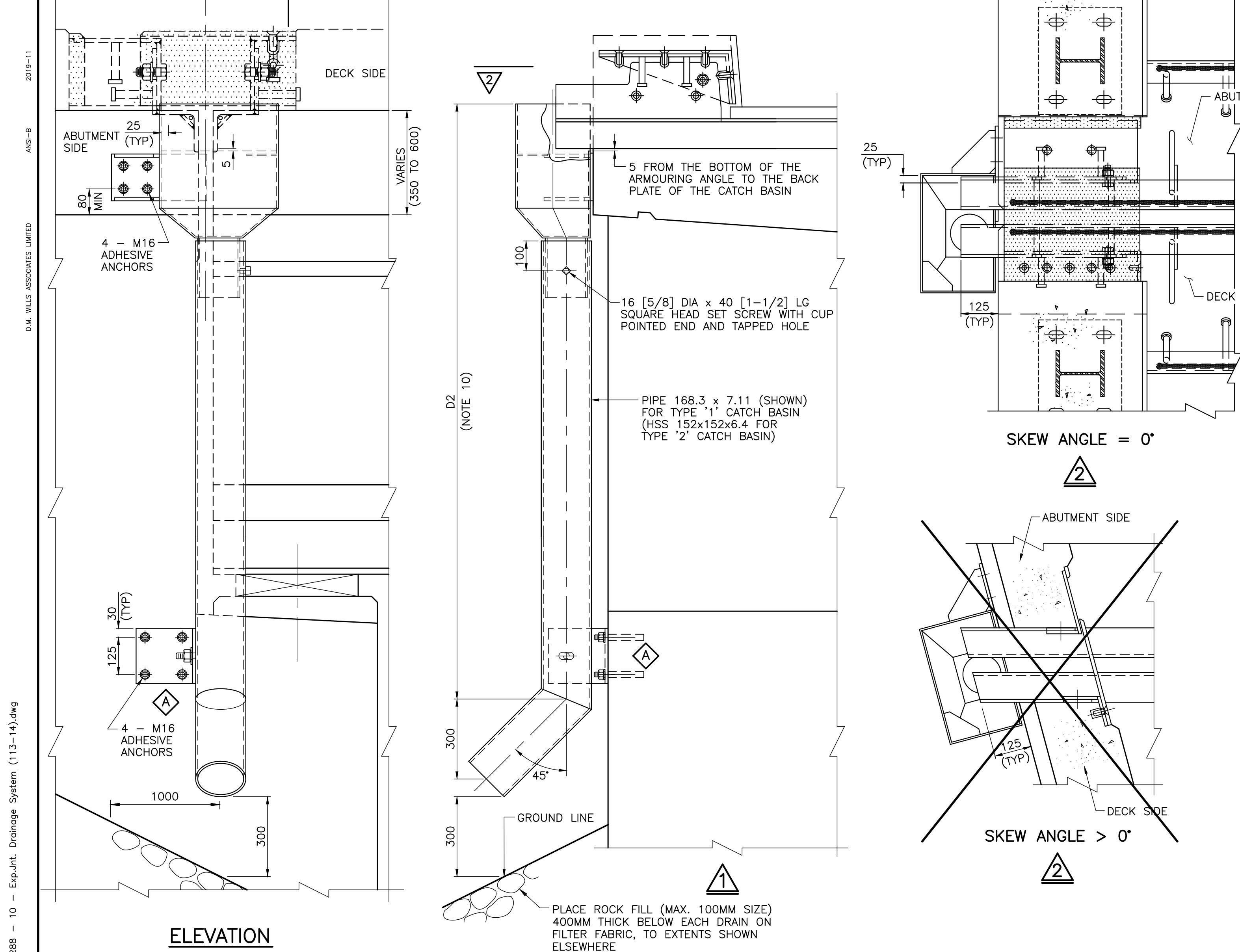
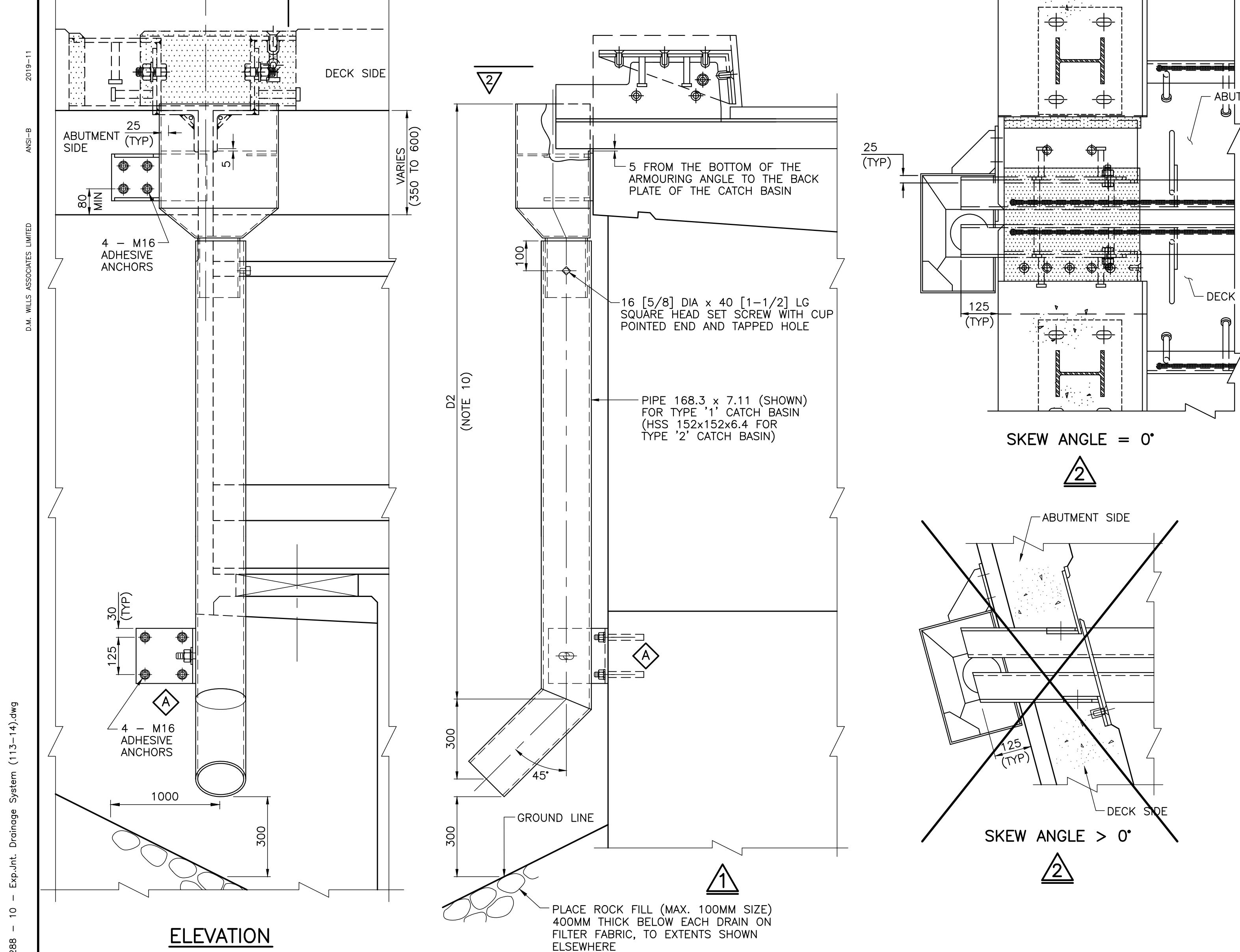
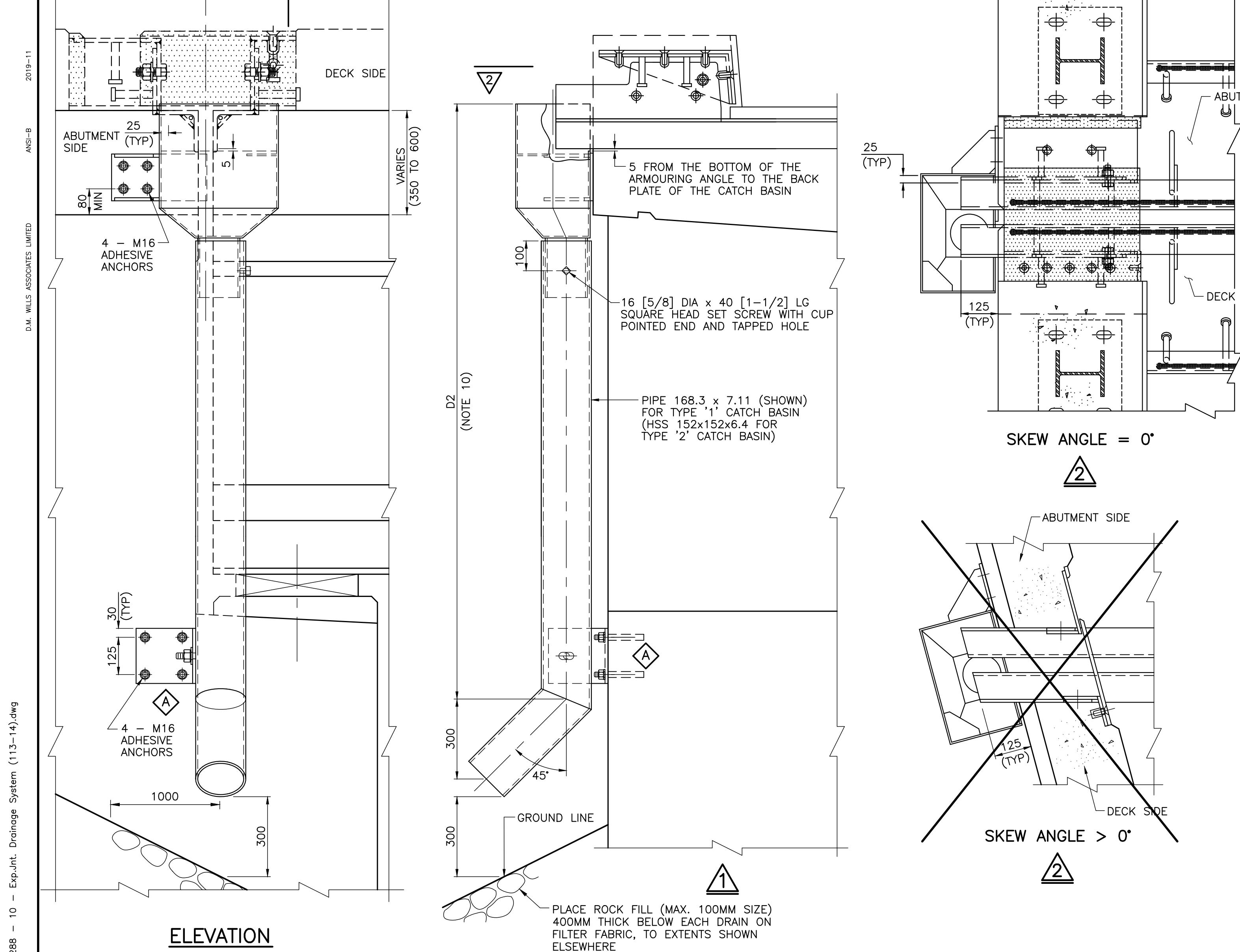
TYPE 2



SKEW ANGLE = 0°



SKEW ANGLE > 0°



**CITY OF TEMISKAMING SHORES**

**GOLF COURSE ROAD BRIDGE REHABILITATION**

**SHEET 09**

**METRIC**  
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN  
DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

**ANTICIPATED PARTS LIST:**

- 3 - NEW POST

\* REFERENCE TO 'ANCHORAGE' SHALL BE TAKEN TO MEAN ALL HARDWARE, BOLTS, REINFORCEMENT, WASHERS, ETC. REQUIRED TO INSTALL OR REPLACE POST ANCHORAGE IN EXISTING AND NEW CONCRETE, AS APPLICABLE.

**NOTES:**

1. ALL NON-STAINLESS STEEL BOLT, NUT AND WASHER FOR FASTENING STEEL RAIL TO POSTS SHALL BE HOT-DIP GALVANIZED.
2. ALL WELDED STUDS OR BLIND BOLTS OR SQUARE HEAD BOLTS SHALL BE INSTALLED AT THE MIDDLE OF THE SLOT AND SHALL BE TIGHTENED TO A CONDITION THAT WILL ALLOW RAIL MOVEMENT.
3. RAILS SHALL BE SUPPLIED IN LENGTHS TO BE ATTACHED TO A MINIMUM OF THREE (3) POSTS EXCEPT WHEN THE WINGWALL LENGTH OF A BRIDGE WITH EXPANSION JOINTS DOES NOT PERMIT THIS. IN THIS CASE, THE RAIL LENGTH CAN BE ATTACHED TO TWO (2) POSTS ON THE WINGWALL.
4. POST AND ANCHORAGES TO INCLUDE ALL BOLTS AND WASHERS.
5. RAILING ANCHORAGE TO BE PLACED PRIOR TO CONCRETING.
6. RAIL SHALL BE PREBENT TO FOLLOW ROAD CURVATURE WHERE RADIUS IS LESS THAN 150m.
7. RAIL POSTS SHALL BE SET PERPENDICULAR TO GRADE WHERE LAYOUT OF POSTS IS NOT SHOWN, POST LOCATION SHALL BE DETERMINED BY THE CONTRACTOR.
8. WHEN CONNECTING TO EXISTING RAILING, RAIL MUST BE MADE CONTINUOUS AND POST SPACING DETERMINED WITH REFERENCE TO EXISTING POSTS.
9. THE COMBINATION OF STEEL RAIL AND ALUMINUM POSTS IS PERMITTED. -WHEN AN EXTRUDED POST IS USED, THE ALLOY SHALL BE 6061 ALLOY T-6 HEAT TREATED. THE POST DIMENSIONS SHALL NOT BE SMALLER THAN THE DETAILS SHOWN IN THE DRAWING. WALLS OF EXTRUDED POST ARE NOT TAPERED AND SHALL HAVE A UNIFORM THICKNESS OF 8mm MINIMUM. -WHEN A CAST POST IS USED THE ALLOY SHALL BE A444.0-T4.
10. RAIL CAP MATERIAL SHALL BE STEEL OR ALUMINUM. RAIL CAP CAN BE SAND CAST 356 ALUMINUM ALLOY. RAIL CAP TO INCLUDE SST SELF TAPPING FASTENERS.
11. THIS DRAWING SHALL BE USED FOR REPLACING THE DAMAGED RAIL AND POSTS AS INDICATED ON THE GENERAL ARRANGEMENT.
12. WHEN RAILING POSTS ARE TO BE REPLACED ON EXISTING BARRIER WALL CONCRETE, THE CONTRACTOR SHALL MAKE EVERY REASONABLE EFFORT TO REUSE THE EXISTING ANCHORAGE, PROVIDED THEY ARE UNDAMAGED, INCLUDING THE APPLICATION OF A THREAD/PENETRATING LUBRICANT PRIOR TO REMOVAL OF THE FASTENING NUTS/BOLTS WITH A TORQUE WRENCH. IF, AFTER THE FIRST ATTEMPT, THE FASTENING NUTS/BOLTS DO NOT UNFASTEN, THE CONTRACTOR SHALL APPLY ADDITIONAL PENETRATING LUBRICANT AND ALLOW AMPLE TIME (AS PER THE LUBRICANT MANUFACTURER SPECIFICATION) FOR THE LUBRICANT TO PENETRATE BEFORE ATTEMPTING TO REMOVE THE FASTENER A SECOND TIME.
13. THE CONTRACTOR SHALL SUBMIT WORKING DRAWINGS FOR THE REPAIR WORKS, STAMPED BY PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO.

**LEGEND:**  
SST - STAINLESS STEEL

**ELEVATION**  
INSIDE FACE SHOWN  
REMOVE AND REINSTALL NEW POST (3 LOCATIONS)

**C1 POST REPLACEMENT IN EXISTING BARRIER TYPICAL CROSS SECTION (STEEL RAIL)**

**C2 POST REPLACEMENT IN NEW BARRIER SECTION TYPICAL CROSS SECTION (STEEL RAIL)**

**POST DETAILS**

MAXIMUM	
POST* SPACING FOR STEEL RAIL	3500mm
POST* SPACING FOR ALUMINUM RAIL	2500mm

\* POSTS MAY BE STEEL OR ALUMINUM

**MODIFIED**  
STANDARD DRAWING JANUARY 2023  
SS113-13  
STRIP SEAL EXPANSION JOINT TYPE "C" DETAILS

**REVISIONS**

12/22/25	MV	ISSUED FOR TENDER
DATE	BY	DESCRIPTION

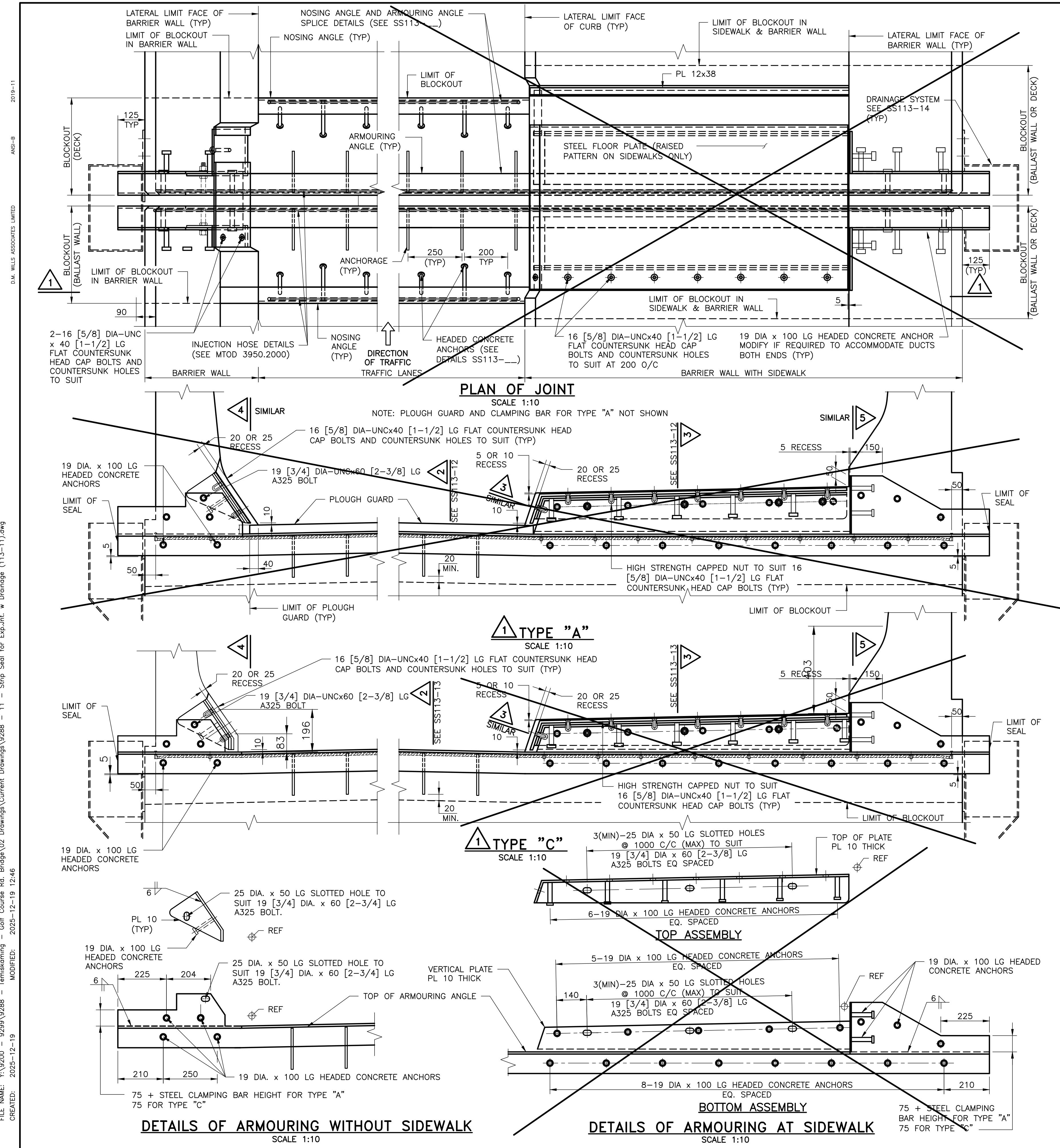
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MODIFIED: 2025-12-19 12:46

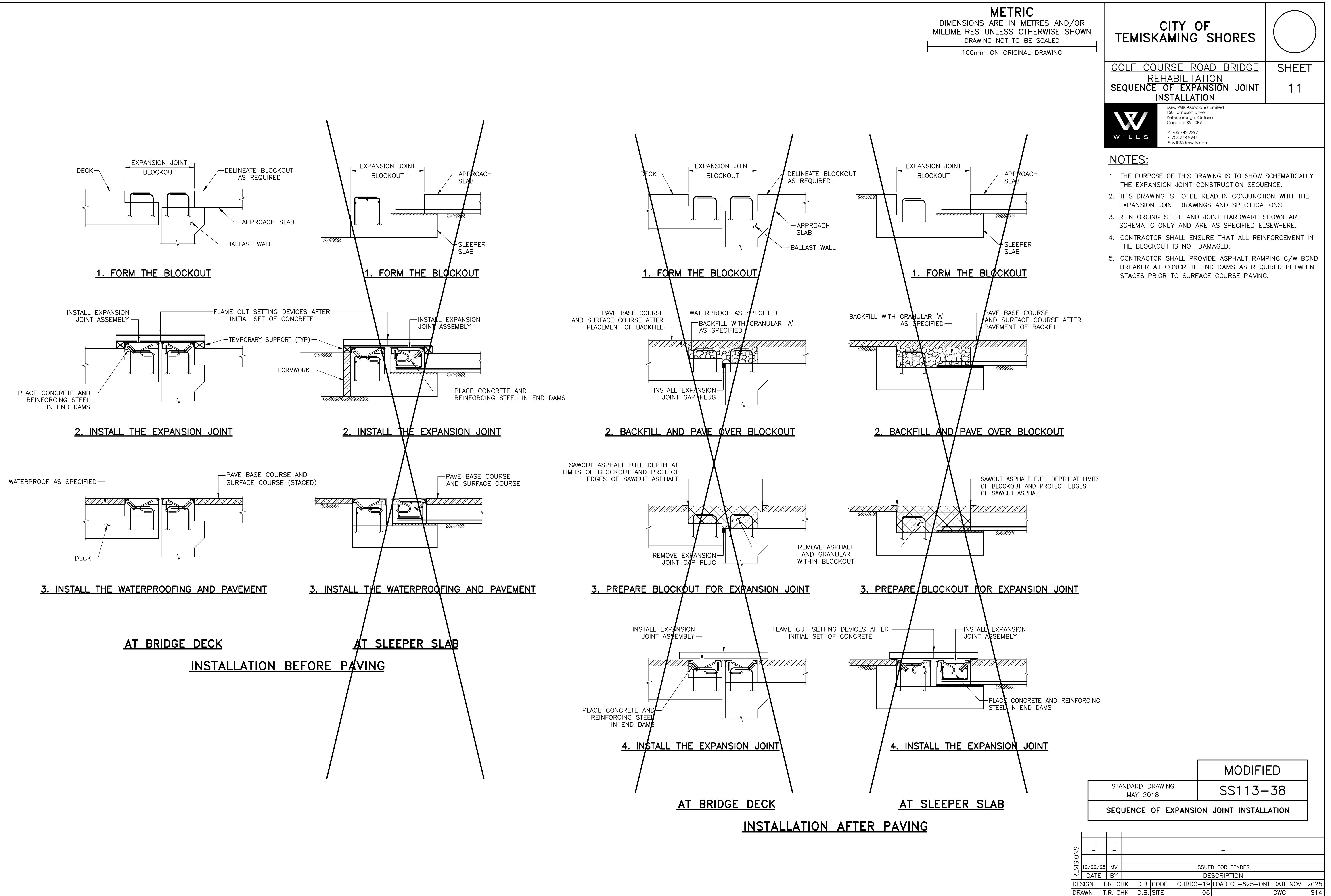
**DETAIL**  
FULL-THREADED WELDED STUD  
(FOR ALTERNATIVE SEE **E**)

**DETAIL**  
BLIND BOLT

**REVISIONS**

12/22/25	MV	ISSUED FOR TENDER				
DATE	BY	DESCRIPTION				
DESIGN	CHK	DB	CODE	CHBDC-19	LOAD CL-625-ONT	DATE NOV. 2025
DRAWN	MV	CHK	---	SITE	06	DWG S--





MINIMUM BENDING PIN DIAMETER, D, mm			
BAR SIZE	STEEL GRADE	400R <sup>(2)</sup>	400W OR 500W
10M	70	60	
15M	100	90	
20M	120	100	
25M	150	150	
30M	250	200	
35M	300	250	
45M	450 <sup>(1)</sup>	400	
55M	600 <sup>(1)</sup>	550	

STANDARD HOOK DIMENSIONS

BAR SIZE	90° HOOKS		180° HOOKS	
	A OR G (mm)	J (mm)	A OR G (mm)	J (mm)
	400R OR 500W	400R OR 500W	400R OR 500W	400R OR 500W
10M	180	180	140	130
15M	260	250	180	170
20M	310	300	220	200
25M	400	400	280	280
30M	510	490	400	350
35M	610	590	480	430
45M	790	770	680	630
55M	1030	1010	900	850

NOTE: All Hook Dimensions are according to the CHBDC-2019.

MINIMUM STIRRUP AND TIE HOOK DIMENSIONS

BAR SIZE	BAR DIAM.	PIN DIAM.	90°		135°	
			A OR G (mm)	H (approx. mm)	A OR G (mm)	H (approx. mm)
10M	11.3	45	100	100	70	
15M	16.0	65	140	140	100	
20M	19.5	100	190	190	115	
25M	25.2	150	280			

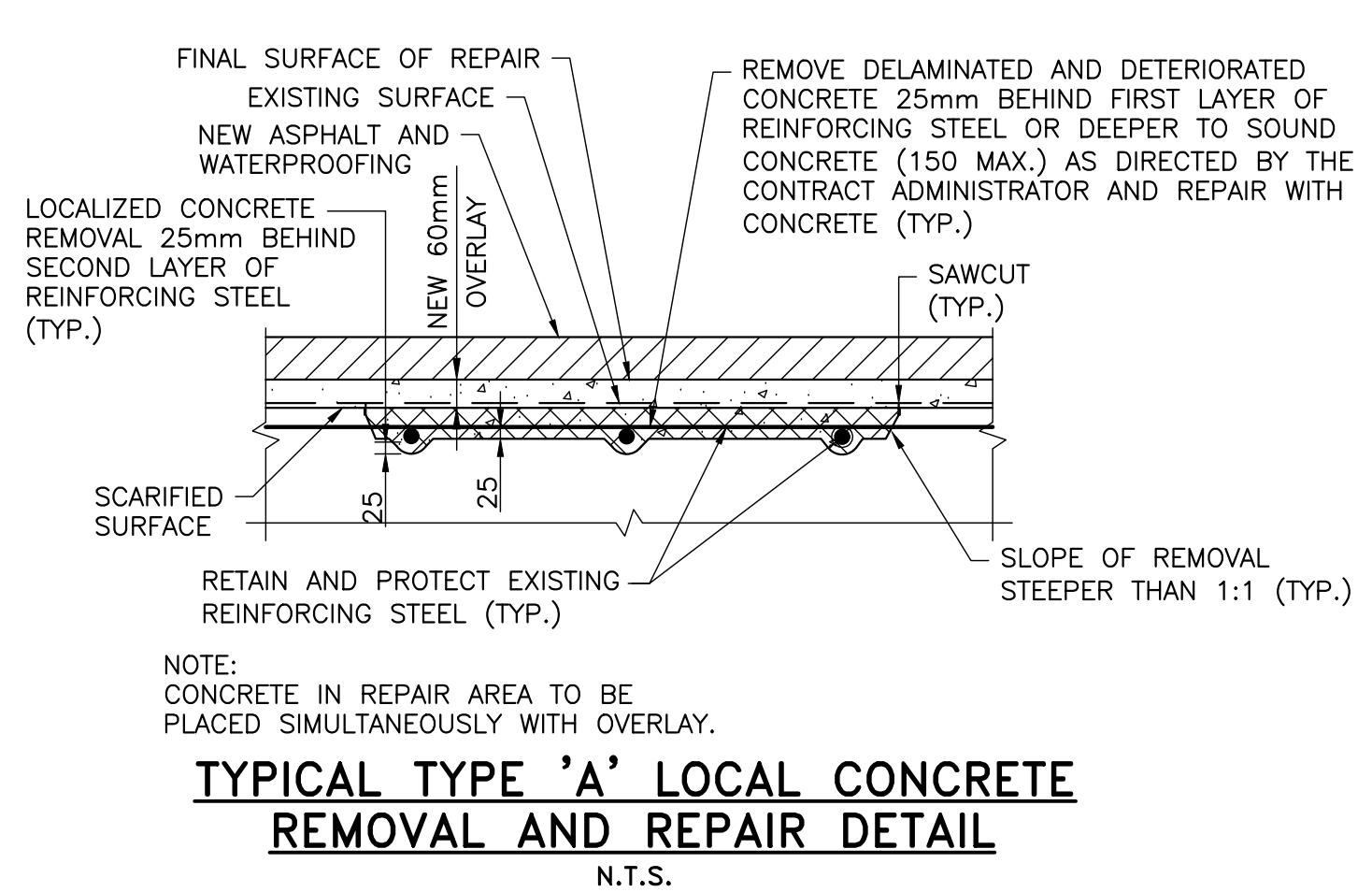
MIN. 90° HOOK      MIN. 135° HOOK

HOOK DIMENSIONS FOR REINFORCING STEEL BARS

SS112-1

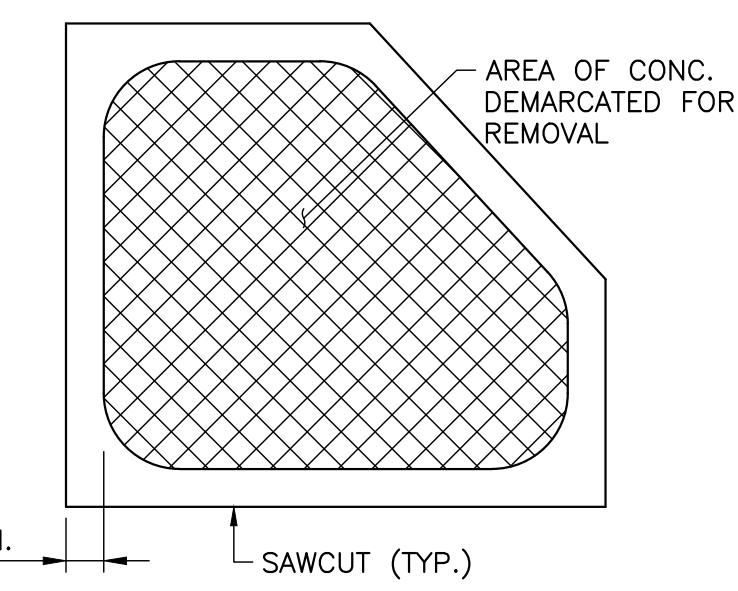
Date OCTOBER 2022 Rev -

Ontario Ministry of Transportation



**TYPICAL REMOVAL IN PLAN OR ELEVATION**

N.T.S.



25 MIN.  
SAWCUT (TYP.)

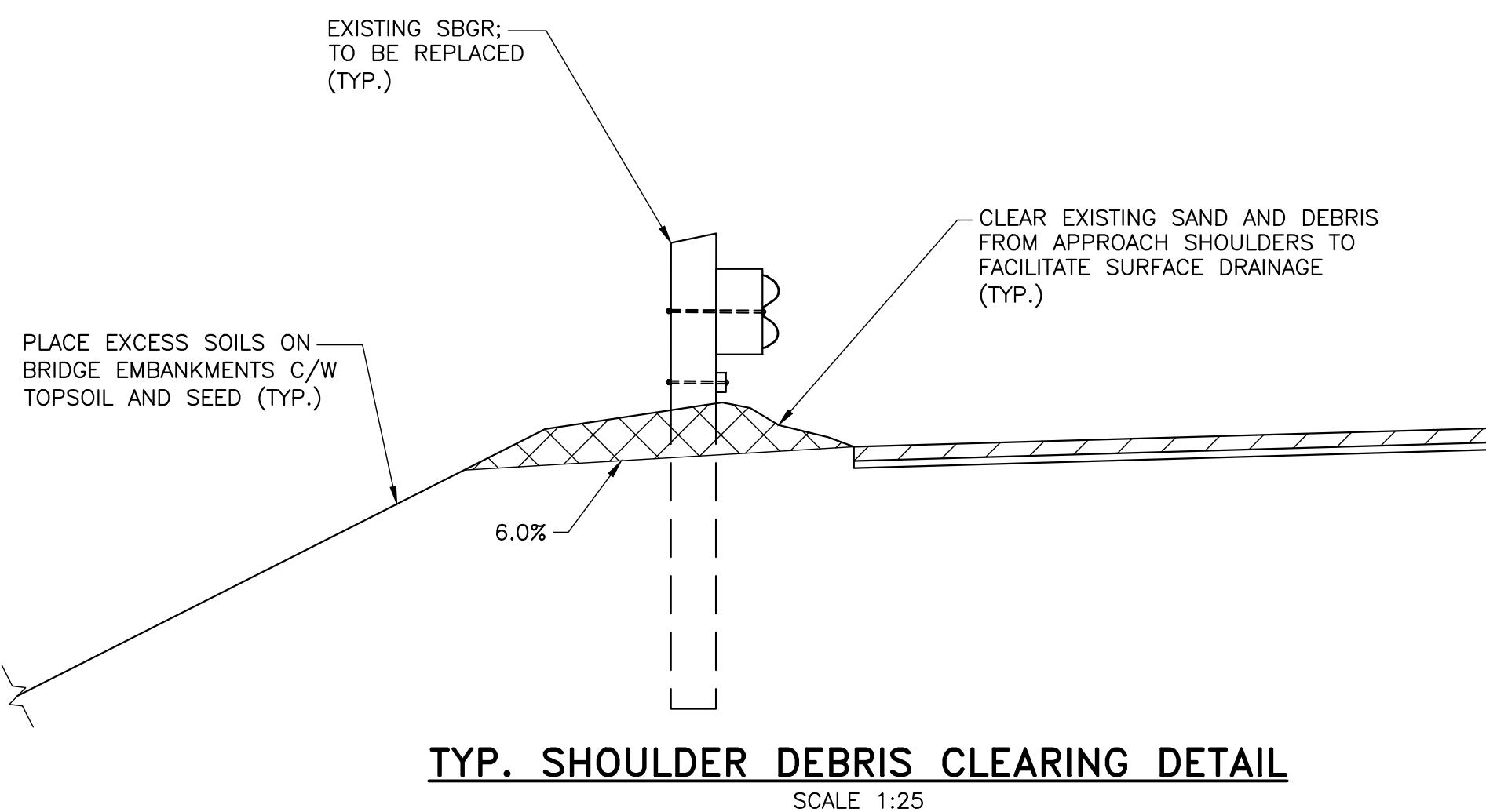
**METRIC**  
DIMENSIONS ARE IN METRES AND/OR MILLIMETRES UNLESS OTHERWISE SHOWN  
DRAWING NOT TO BE SCALED  
100mm ON ORIGINAL DRAWING

**LEGEND:**  
X X REMOVALS  
X X NEW CONCRETE

**CITY OF TEMISKAMING SHORES**  
GOLF COURSE ROAD BRIDGE REHABILITATION TYPICAL DETAILS  
SHEET 12  
D.M. WILLS ASSOCIATES LIMITED  
150 Jamieson Drive  
Peterborough, Ontario  
Canada, K9J 0B9  
P. 705.742.2297  
F. 705.748.9944  
E. wills@dmwills.com

**NOTES:**

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL OTHER APPLICABLE CONTRACT DRAWINGS.



**TYP. SHOULDER DEBRIS CLEARING DETAIL**

SCALE 1:25

REVISIONS	-	-	-
12/22/25	MV	ISSUED FOR TENDER	
DATE	BY	DESCRIPTION	
DESIGN	T.R. / CHK	D.B. / CODE	CHBDC-19 / LOAD CL-625-ONT / DATE NOV. 2025
DRAWN	T.R. / CHK	D.B. / SITE	06 / DWG S16