

GENERAL

- G1 STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER DISCIPLINE DRAWINGS, DOCUMENTS, SPECIFICATIONS ETC. AS PART OF THE CONTRACT DOCUMENT OR. MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
- G2 DIMENSIONS SHALL NOT BE OBTAINED BY SCALING DRAWINGS.
- G3 FOR MAIN SETTING OUT LINES AND LEVELS REFER TO ARCHITECTURAL DRAWINGS.
- G4 THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE SAFETY OF CONSTRUCTION AT ALL TIMES AND SHALL ENSURE THAT NO PART OF INTERMEDIATE COMPLETED CONSTRUCTION IS HAZARDOUS (FOR EXAMPLE; SIDES OF EXCAVATION, STARTER BARS ETC.)
- G5 THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AND SHORING AGAINST LATERAL FORCES AND ALL CONSTRUCTION LOADS THROUGHOUT THE CONSTRUCTION PROCESS.
- G6 ALL ELEMENTS OF THE STRUCTURE DESIGNED BY THE CONTRACTOR SHALL BE SUBMITTED TO DESIGN CONSULTANT FOR REVIEW.
- G7 THE DESIGN CONSULTANT'S REVIEW PROCESS FOR ALL SUBMITTALS, DRAWINGS, METHOD STATEMENTS AND DOCUMENTS IS ONLY COMPLETE ONCE A STATUS OF 'NO OBJECTION' IS REACHED. THE SUBMITTAL SHALL BE REVIEWED BY THE DESIGN CONSULTANT FOR COMPLIANCE WITH THE DESIGN INTENT THIS DOES NOT RELIEVE THE CONTRACTOR FROM HIS CONTRACTUAL RESPONSIBILITIES.
- G8 FOR ALL BUILDERS WORK INFORMATION (OPENINGS IN STRUCTURAL ELEMENTS):- LIGHTING POINTS, GULLIES, CAST-IN PIPES, SLEEVES, ELECTRICAL TRENCHES, MANHOLES ETC, REFER TO MEP DRAWINGS FOR LOCATION. THE CONTRACTOR SHALL PREPARE COORDINATED SERVICES DRAWINGS IDENTIFYING STRUCTURAL, MEP AND ARCHITECTURAL ELEMENTS/DETAILS FOR CONSULTANT'S REVIEW BEFORE COMMENCEMENT OF CONSTRUCTION IN THE AREA CONCERNED.
- G9 ALL DESIGN, WORKMANSHIP AND MATERIAL SHALL BE IN ACCORDANCE WITH THE CURRENT ACI, UBC, IBC, AISC AND LOCAL AUTHORITY STANDARDS AND PROJECT DESIGN CRITERIA UNLESS NOTED OTHERWISE.

FOUNDATIONS

- F1 THE CONTRACTOR SHALL READ AND FAMILIARIZE HIMSELF WITH THE GEOTECHNICAL INVESTIGATION REPORT AS WELL AS VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH THE SURFACE AND SUBSURFACE CONDITIONS.
- F2 LOOSE POCKETS OF SOIL WHICH ARE ENCOUNTERED SHALL BE REMOVED AND REPLACED WITH GOOD SOIL, COMPACTED TO ACHIEVE THE DESIRED BEARING PRESSURE.
- F3 ANY ADJACENT FOOTING IN THE VICINITY OF THE WORK SHALL BE PROPERLY PROTECTED BEFORE EXECUTION OF WORK.
- F4 FOUNDATION SHALL BE PLACED ON FIRM AND VIRGIN GROUND HAVING NET ALLOWABLE BEARING CAPACITY SPECIFIED IN SUB SOIL INVESTIGATION REPORT.
- F5 THE BOTTOM OF NEW FOUNDATION SHALL BE PLACED NO DEEPER THAN DEPTH OF ADJACENT FOOTING PLUS 75% OF THE MINIMUM DISTANCE BETWEEN THE FOOTINGS.
- F6 FOUNDATION IS RECOMMENDED TO BE PROVIDED AT 6.0 FEET BELOW THE N.G.L. LEVEL.

DESIGN LOADS

- DL1 SEISMIC LOADING IN ACCORDANCE WITH THE UNIFORM BUILDING CODE, 1997
 - UBC ZONE = 3
 - SEISMIC ZONE FACTOR = 0.3
 - SOIL PROFILE = TYPE Sd
 - IMPORTANCE FACTOR, I = 1.0
 - OCCUPANCY CATEGORY IV STANDARD OCCUPANCY
 - NUMERICAL COEFFICIENT, R = AS PER TABLE 16-N
 - C_s = 0.36
 - C_v = 0.54

LIVE LOADS

- DL2
 - STAIRCASE / LOBBY = 100 psf.
 - CORRIDOR BALCONY = 100 psf.
 - ROOF ACCESSIBLE = 40 psf.
 - NON ACCESSIBLE ROOF = 20 psf.
 - CLASS ROOM = 60 psf.
 - OFFICE = 60 psf.
 - AUDITORIUM / LECTURE HALL = 100 psf.
 - STORE ROOM = 100 psf.
 - TEACHER'S COMMON HALL = 40 psf.
 - SNOW = 75 psf.

DEAD LOADS

- DL4
 - FLOOR FINISHES (3") = 36 psf.
 - PARTITION WALL AS PER ARCH DRAWINGS
 - SOIL FILL AS PER ARCH LEVELS

DESIGN CODE OF PRACTICE

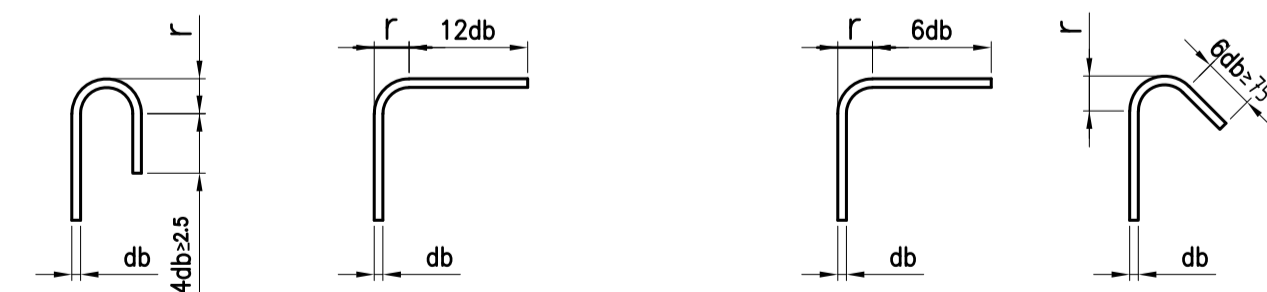
- DC1 1997 UNIFORM BUILDING CODE.
- DC2 ACI-318-05/ ACI 318R-05 BUILDING CODE FOR STRUCTURAL CONCRETE AND COMMENTARY.
- DC3 ASCE/SEI 7-05 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.
- DC4 ANSI/AISC 360-01 SPECIFICATION FOR STRUCTURAL STEEL BUILDING.
- DC5 ANSI/AISC 341-01 SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDING.
- DC6 BCP-SP-2007 SEISMIC BUILDING CODE OF PAKISTAN.
- DC7 ACI 360R-92 DESIGN OF SLAB ON GRADE

ANCHORAGE OF BARS BY HOOKS:

* THE DIMENSIONS AND BENDING RADI FOR HOOKS TO BE USE AS STANDARDIZED IN THE ACI CODE:

- 1- A 180° BEND PLUS AN EXTENSION OF AT LEAST 4 BAR DIAMETERS, BUT NOT LESS THAN 2.5 IN AT THE FREE END OF BAR OR
- 2- A 90° BEND PLUS AN EXTENSION OF AT LEAST 12 BAR DIAMETERS AT THE FREE END OF THE BAR, OR
- 3- FOR STIRRUP AN TIE ANCHORAGE ONLY:
 - a. FOR NO. 5 BARS AND SMALLER, A 90° BEND PLUS AN EXTENSION OF AT LEAST 6 BAR DIAMETERS AT THE FREE END OF THE BAR, OR
 - b. FOR NOS. 6,7 AND 8 BARS, A 90° BEND PLUS AN EXTENSION OF AT LEAST 12 BAR DIAMETERS AT THE FREE END OF THE BAR, OR
 - c. FOR NO. 8 BARS AND SMALLER, A 135° BEND PLUS AN EXTENSION OF AT LEAST 6 BAR DIAMETERS AT THE FREE END OF THE BAR.

THE MINIMUM DIAMETER OF BEND, MEASURED ON THE INSIDE OF THE BAR, FOR STANDARD HOOKS OTHER THAN FOR STIRRUPS OR TIES IN SIZES NOS. 3 THROUGH 5, SHOULD NOT BE LESS THAN 6 BAR DIAMETER. FOR STIRRUP AND TIE HOOKS, FOR BAR SIZES NO.5 AND SMALLER, THE INSIDE DIAMETER OF BEND SHOULD NOT BE LESS THAN 4 BAR DIAMETERS, ACCORDING TO ACI CODE:



(a). MAIN REINFORCEMENT

r = 4db FOR db ≤ T25
r = 5db FOR db > T25

(b). STIRRUPS AND TIES

6 - GENERAL CONSTRUCTION CONDITION

- G01 ALL EXCAVATION SHALL BE BASED ON ENGINEERING SHOP DRAWINGS PREPARED BY THE CONTRACTOR, INCLUDING PLANS AND SECTIONS OF EXCAVATION SEQUENCES. THE EXCAVATION SEQUENCES SHALL BE CONTROLLED TO MATCH THE REQUIREMENTS OF THE DESIGN OF THE SOIL RETENTION SYSTEM AND SHALL INCLUDE MONITORING OF WALL AND GROUND MOVEMENTS.
- G02 THE CONTRACTOR SHALL PROVIDE SURFACE DRAINAGE CHANNELS AND SLUMPS AND SUMP PUMPS TO PROTECT ALL EXCAVATIONS FROM FLOODING. FLOODING OF ANY EXCAVATION AFTER APPROVAL OF SUB GRADE WILL BE A CAUSE FOR REVOCATION OF APPROVAL AND COMPLETE RE-PREPARATION OF THE SUBGRADE.
- G03 THE CONTRACTOR SHALL PROVIDE POSITIVE PROTECTION (MAT/SHEET COVERING) FOR ALL EXCAVATED SLOPES TO PROTECT SLOPES FROM INSTABILITY AND DETERIORATION DUE TO ENVIRONMENTAL CONDITIONS.
- G04 THE EXCAVATION RETENTION SYSTEM SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH THE GEOTECHNICAL DESIGN PARAMETERS AND SOIL PRESSURES AS INDICATED IN THE GEOTECHNICAL INVESTIGATION REPORT.
- G05 THE CONTRACTOR SHALL INSTALL AND CONTINUOUSLY SURVEY VERTICAL AND HORIZONTAL MOVEMENTS OF THE TOP OF THE SOIL RETENTION SYSTEM, IF INSTALLED, BENCH MARKS ADJACENT TO AND AWAY FROM THE SITE PERIMETER FOR VERTICAL AND HORIZONTAL MOVEMENTS AND OBSERVATION WELLS FOR MONITORING WATER LEVELS BELOW GROUND SURFACE.
- G06 AFTER COMPLETION OF THE PERIMETER SOIL RETENTION SYSTEM, THE SITE SHALL BE DE-WATERED, AS NECESSARY, BEFORE (OR AS) THE EXCAVATION PROCEEDS. THE CONTRACTOR SHALL PROVIDE ALL CONSTRUCTION EQUIPMENT FOR THE DE-WATERING SYSTEM INCLUDING, BUT NOT LIMITED TO, TRENCHES, SUMPS, DE-WATERING WELLS, WELL POINTS, OBSERVATION WELLS, PUMPING SYSTEM, DISPOSAL LOCATION, SETTLING BASINS, MAINTENANCE AND EMERGENCY BACK-UP EQUIPMENT, ETC.
- G07 THE DE-WATERING SYSTEM SHALL MAINTAIN THE WATER LEVEL A MINIMUM OF (900) BELOW THE DEEPEST FOUNDATION SUBGRADE AT ALL TIMES.

REINFORCED CONCRETE

- C1 THE CONTRACTOR SHALL SUBMIT DETAILED RC DRAWINGS AND BAR BENDING SCHEDULES SHOWING BAR SIZES, SPACING, PLACEMENT AND SUPPORT DETAILS DOWELS AT EXPANSION JOINTS AND LAPS ETC. FOR REVIEW AND ACCEPTANCE OF THE DESIGN CONSULTANT. WORK SHALL NOT COMMENCE UNTIL THE SHOP DRAWINGS ARE REVIEWED AND ACCEPTED. REVIEW OF SHOP DRAWINGS DOES NOT ALLEVIATE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE INPUT OF ALL TRADES ON THE SHOP DRAWINGS.
- C2 REFER TO SPECIFICATIONS FOR QUALITY AND PERFORMANCE REQUIREMENTS OF CONCRETE.

(i) NORMAL CONCRETE NOT IN CONTACT WITH THE GROUND:

CEMENT	ORDINARY PORTLAND CEMENT (OPC)
MIN. CEMENT CONTENT	24 lb/ft ³ (380kg/m ³)
MAX. W/C RATIO	0.40

(ii) NORMAL CONCRETE IN CONTACT WITH THE GROUND:

CEMENT	OPC TYPE-I WITH C _s A ≤ 5% OR OPC TYPE-II
MIN. CEMENT CONTENT	24 lb/ft ³ (380kg/m ³)
MAX. W/C RATIO	0.40

- C3 ALL CAST-IN-SITU CONCRETE SHALL HAVE A MINIMUM 28 DAYS CYLINDRICAL STRENGTH UNLESS NOTED OTHERWISE OR MENTIONED IN FOLLOWING TABLE:

- FOUNDATION	= 3.0 ksi.
- COLUMNS FROM FOUNDATION TO ROOF	= 3.75 ksi.
- BEAMS AND SLABS	= 3.0 ksi.
- LEAN	= 1.5 ksi.

- C4 WATER CEMENT RATIO SHALL NOT EXCEED 0.4.
- C5 MAXIMUM POSSIBLE WATER-SOLUBLE CHLORIDE ION (Cl) CONTENT IN CONCRETE SHALL NOT EXCEED 0.15% BY WEIGHT OF CEMENT.
- C6 MAXIMUM SIZE OF COURSE AGGREGATE SHALL BE 25MM UNLESS NOTED OTHERWISE.
- C7 CONTRACTOR SHALL GET APPROVAL FROM DESIGN CONSULTANT OF A CONCRETE MIX DESIGN.
- C8 THE CONTRACTOR SHALL PERFORM AND SUBMIT FOR REVIEW INSTRUMENT SURVEYS OF FINISHED CONCRETE SLAB SURFACES, BOTH BEFORE AND AFTER REMOVAL OF FORM WORK AND/OR SHORING SYSTEM TO VERIFY AS-BUILT TOLERANCES.
- C9 REFER TO SPECIFICATIONS FOR REQUIREMENTS OF CONCRETE SURFACE FINISH AND CASTING TOLERANCE.
- C10 PROVIDE UPWARD CAMBER TO SLABS AND BEAMS AS NOTED ON STRUCTURAL DRAWINGS AND/OR SPECIFICATIONS CAMBER BOTH UNDERSIDE AND TOP OF CONCRETE TO MAINTAIN THE SLAB AND BEAM DEPTH SHOWN ON THE DRAWINGS UNLESS NOTED OTHERWISE.
- C11 BEAMS, SLABS, COLUMNS, WALLS AND FOUNDATION ELEMENTS SHALL NOT BE SLEEVED OR BOXED-OUT OR HAVE THE REINFORCEMENT INTERRUPTED EXCEPT AS INDICATED ON THE STRUCTURAL DRAWINGS.
- C12 ALL CONCRETE SHALL CONTAIN AN APPROVED WATER REDUCING, PLASTICIZING ADMIXTURE. APPROVED HIGH RANGE WATER REDUCING ADMIXTURE MAY BE UTILIZED AT THE CONTRACTOR'S OPTION. ALL CONCRETE PERMANENTLY EXPOSED TO WEATHER SHALL ALSO CONTAIN AN APPROVED AIR-ENTRAINING ADMIXTURE TO PROVIDE PERCENTAGE OF AIR REQUIRED FOR SEVERE EXPOSURE AS PER ACI 318.
- C13 NO CALCIUM CHLORIDE SHALL BE USED IN ANY CONCRETE.
- C14 THE FOLLOWING CONCRETE CLEAR COVER TO PRIMARY REINFORCEMENT SHALL BE PROVIDED, UNLESS LARGER COVER IS NOTED ON THE STRUCTURAL DRAWINGS.

ELEMENT	CONCRETE CLEAR COVER SCHEDULE	
	ABOVE GROUND INTERIOR ENVIRONMENT	ABOVE GROUND EXTERIOR ENVIRONMENT
COLUMNS(VERTICAL BARS)	1.5"	2"
BEAMS(LONGITUDINAL BARS)	1.5"	2"
WALLS	1"	1.5"
GRADE SLAB	1"	3"
SUSPENDED SLAB	1"	1.5"
EQUIPMENT PAD	1"	3"
WATER TANK	2"	2"

NOTE: - CLEAR COVER SHALL NOT BE LESS THAN ONE BAR DIA.
- CONCRETE COVER FOR SURFACE CAST AGAINST SOIL SHALL BE 3" AND FOR SURFACE INCONTACT WITH SOIL SHALL BE 2".

- C15 AGGREGATE FOR CONCRETE SHALL BE FROM APPROVED SOURCE AND SHALL COMPLY WITH THE SPECIFICATION REQUIREMENTS.
- C16 HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE MADE IN BEAMS UNLESS SHOWN OR REVIEWED BY DESIGN CONSULTANT. VERTICAL CONSTRUCTION JOINTS MAY BE MADE AT MIDSPAN OF BEAMS, OR SLABS HAVING NO POINT LOADS AT CENTER OF SPAN, UNLESS OTHERWISE NOTED OR SHOWN OR DIRECTED BY THE DESIGN CONSULTANT.
- C17 ALL CONCRETE SHALL BE COMPACTED USING ONLY MECHANICAL VIBRATION PROCESS.
- C18 ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE SPECIFICATIONS.

REINFORCEMENT

- R1 ALL REINFORCING BARS SHALL BE DEFORMED BARS WITH YIELD STRENGTH OF 414MPa CONFORMING TO ASTM A615.
- R2 EPOXY COATED REINFORCING BARS SHALL NOT BE PERMITTED.
- R3 ALL REINFORCING BARS SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND REQUIREMENTS OUTLINED IN THE CURRENT ACI 318 AND ACI 315 UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
- R4 ALL STARTER BARS SHALL BE SURVEYED AND LOCATION CONFIRMED IN AS-BUILT CONDITION PRIOR TO PLACING WALL/COLUMN REINFORCEMENT AND ANY DISCREPANCIES SHALL BE REPORTED TO THE DESIGN CONSULTANT FOR INSTRUCTIONS.
- R5 PROVIDE STARTER BARS TO WALLS AND COLUMNS SIMILAR IN NUMBER AND SIZE AND SPACING TO THE VERTICAL BARS ABOVE UNLESS NOTED OTHERWISE.
- R6 WELDING AND/OR SITE CUTTING OF THE REINFORCING BARS SHALL NOT BE PERMITTED UNLESS REVIEWED AND ACCEPTED BY THE DESIGN CONSULTANT.
- R7 ALL PROPRIETARY FIXING SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- R8 ALL REINFORCING SPLICES SHALL BE CLASS B TENSION SPLICES IN ACCORDANCE WITH THE CURRENT ACI 318 UNLESS NOTED OTHERWISE. REFER TO SCHEDULE BELOW FOR SPLICE LENGTHS.

TENSION SPLICE LENGTH	
CLASS A	1.0X DEVELOPMENT LENGTH
CLASS B	1.3X DEVELOPMENT LENGTH

CLASS A = A_s PROVIDED ≥ 2 A_s REQUIRED AND PERCENTAGE A_s SPLICES < 50%
CLASS B = ALL OTHER CONDITIONS

- R9 ALL WIRE MESH REINFORCEMENT SHALL BE LAPPED AT LEAST 2 MESH PANELS AND SECURELY TIED. ALL REINFORCING DEVELOPMENT LENGTHS SHALL BE TENSION DEVELOPMENT LENGTHS IN ACCORDANCE WITH THE CURRENT ACI 318 UNLESS NOTED OTHERWISE. REFER TO SCHEDULE BELOW.

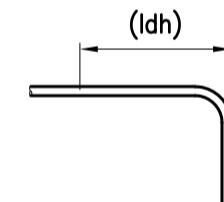
	TENSION DEVELOPMENT LENGTHS*					
	FOR f _c = 3ksi					
	#3	#4	#5	#6	#8	#10
CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN DIA OF BAR, AND BEAM STIRRUPS OR COLUMNS TIES THROUGHOUT SPACE LENGTH NOT LESS THAN THE CODE MINIMUM	16"	22"	28"	32"	54"	68"
CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN TWICE THE DIA OF BAR, AND CLEAR COVER NOT LESS THAN DIA OF BAR						
OTHER CASES	24"	32"	41"	50"	82"	120"

*ABOVE DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY 1.3 WHERE HORIZONTAL REINFORCEMENT IS PLACED SUCH THAT MORE THEN 12in OF FRESH CONCRETE IS CAST BELOW.

	TENSION DEVELOPMENT LENGTHS*					
	FOR f _c = 3.75ksi					
	#3	#4	#5	#6	#8	#10
CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN DIA OF BAR, AND BEAM STIRRUPS OR COLUMNS TIES THROUGHOUT SPACE LENGTH NOT LESS THAN THE CODE MINIMUM	15"	20"	26"	30"	52"	65"
CLEAR SPACING OF BARS BEING DEVELOPED OR SPLICED NOT LESS THAN TWICE THE DIA OF BAR, AND CLEAR COVER NOT LESS THAN DIA OF BAR						
OTHER CASES	23"	30"	39"	45"	76"	95"

*ABOVE DEVELOPMENT LENGTH SHALL BE MULTIPLIED BY 1.3 WHERE HORIZONTAL REINFORCEMENT IS PLACED SUCH THAT MORE THEN 12in OF FRESH CONCRETE IS CAST BELOW.

COMPRESSION DEVELOPMENT LENGTHS AND DEVELOPMENT LENGTH FOR STANDARD HOOKS (ldh)	
#3	9"
#4	11"
#5	14"
#6	17"
#8	22"
#10	28"



- R10 MECHANICAL SPLICING OF LARGE DIAMETER BARS MAY BE ACCEPTABLE SUBJECT TO REVIEW BY THE DESIGN CONSULTANT
- R11 FOR HOUSE KEEPING PADS AND FLOATING SLABS PROVIDE REINFORCEMENT IN ACCORDANCE WITH THE CURRENT ACI 318 UNLESS NOTED OTHERWISE OR SHOWN ON THE STRUCTURAL DRAWINGS.

CONSTRUCTION INSPECTION PROGRAM FOOTNOTES:

1. PROVIDE CONSTRUCTION INSPECTION, CONSTRUCTION TESTING, REPORTING AND COMPLIANCE PROCEDURES ACCORDING TO CHAPTER 17 OF THE UBC-97 BUILDING CODE.
2. PRIOR TO THE BEGINNING OF CONSTRUCTION, REVIEW THE CONSTRUCTION INSPECTION REQUIREMENTS WITH THE ARCHITECT, ENGINEER, BUILDING OFFICIAL, GENERAL CONTRACTOR AND CONSTRUCTION INSPECTORS.
3. DUTIES OF THE CONSTRUCTION INSPECTOR INCLUDE, BUT ARE NOT LIMITED TO:
 - A. OBSERVE THE WORK FOR CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS. BRING DISCREPANCIES TO THE IMMEDIATE ATTENTION OF THE GENERAL CONTRACTOR FOR CORRECTION, THEN, IF UNCORRECTED, TO THE ENGINEER AND TO THE BUILDING OFFICIAL.
 - B. FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE BUILDING OFFICIAL, ARCHITECT, STRUCTURAL ENGINEER, GENERAL CONTRACTOR AND OWNER IN A TIMELY MANNER.
 - C. SUBMIT A FINAL REPORT STATING WHETHER THE WORK REQUIRING CONSTRUCTION INSPECTION WAS INSPECTED, AND WHETHER THE WORKS IN CONFORMANCE WITH THE APPROVED DRAWINGS AND SPECIFICATIONS.
4. DUTIES TO THE GENERAL CONTRACTOR INCLUDE, BUT ARE NOT LIMITED TO:
 - A. NOTIFY CONSTRUCTION INSPECTOR THAT WORK IS READY FOR INSPECTION AT LEAST 24 HOURS BEFORE INSPECTION IS REQUIRED.
 - B. MAINTAIN ACCESS TO WORK REQUIRING INSPECTION UNTIL IT HAS BEEN OBSERVED AND INDICATED TO BE IN CONFORMANCE BY THE CONSTRUCTION INSPECTOR AND APPROVED.
 - C. PROVIDE THE CONSTRUCTION INSPECTOR WITH ACCESS TO APPROVED DRAWINGS AND SPECIFICATIONS AT THE JOB SITE.
 - D. MAINTAIN JOB-SITE COPIES OF ALL REPORTS SUBMITTED BY THE CONSTRUCTION INSPECTOR.
5. DEFINITIONS:
 - A. **CONTINUOUS INSPECTION:** THE SPECIAL INSPECTOR IS OBSERVING THE WORK REQUIRING SPECIAL INSPECTION AT ALL TIMES.
 - B. **PERIODIC INSPECTION:** THE SPECIAL INSPECTOR IS ON SITE AS REQUIRED TO CONFIRM THAT THE WORK REQUIRING SPECIAL INSPECTION IS IN CONFORMANCE.

A1. GENERAL ABBREVIATIONS

APPROX-	APPROXIMATELY	LG	- LONG	S.S.L-	STRUCTURAL SLAB LEVEL
BP	- BASE POINT	M	- METRE	STD	- STANDARD
CHAM	- CHAMFERED	MAX	- MAXIMUM	TBC	- TO BE CONFIRMED
CJ	- CONSTRUCTION JOINT	MIN	- MINIMUM	THK	- THICKNESS
CONC	- CONCRETE	MJ	- MOVEMENT JOINT	TJ	- TRANSVERSE JOINT
DEG	- DEGREES	IN	- INCHES	TW	- THICKNESS OF WALL
DIA	- DIAMETER	No	- NUMBER	TYP	- TYPICAL
D	- DEPTH	NOM	- NOMINAL	UNO	- UNLESS NOTED OTHERWISE
DWG	- DRAWING	NTS	- NOT TO SCALE	W	- WIDE
EGL	- EXISTING GROUND LEVEL	NGL	- NATURAL GROUND LEVEL	P.L	- PLINTH LEVEL
EJ	- EXPANSION JOINT	P/O	- PERMANENT OPENING	BOF	- BOTTOM OF FOOTING
EXTG	- EXISTING	RAD	- RADIUS	SOG	- SLAB ON GRADE
FLL	- FINISHED FLOOR LEVEL	RC	- REINFORCED CONCRETE		
FGL	- FINISHED GROUND LEVEL	REF	- REFER		
GA	- GENERAL ARRANGEMENT	REQD	- REQUIRED		
GL	- GROUND LEVEL	REV	- REVISION		
GWT	- GROUND WATER TABLE	SOP	- SETTING OUT POINT		
IJ	- ISOLATION JOINT	SO	- SQUARE		

A2. REINFORCEMENT ABBREVIATIONS

ABR	- ALT. BARS REVERSED
ABS	- ALT. BARS STAGGERED
ALT	- ALTERNATE
B	- BOTTOM
CRS	- CENTRES
EF	- EACH FACE
EW	- EACH WAY
EXTF	- EXTERNAL FACE
FF	- FAR FACE
H	- HORIZONTAL
INTF	- INTERNAL FACE
NF	- NEAR FACE
PARS	- PARS
PRRS	- PARS
REINF	- REINFORCEMENT
STG	- STAGGERED
T	- TOP
T/O	- TEMPORARY OPENING
To	- TENSION ANCHORAGE
TOC	- TOP OF CONCRETE
V	- VERTICAL
ADD.	- ADDITIONAL

Client :



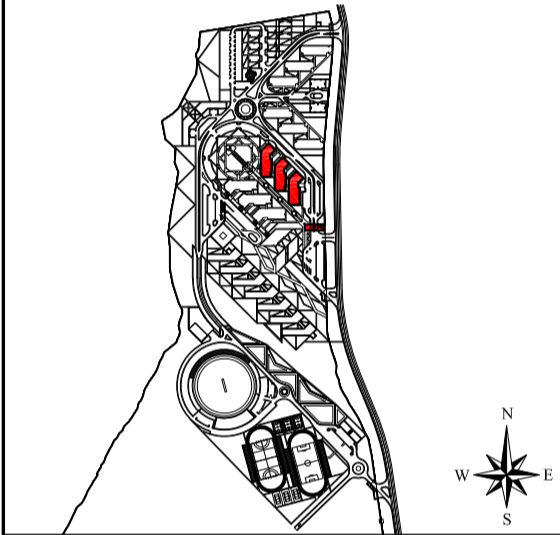
Consultant :



Project :

**UNIVERSITY OF
BALISTAN SKARDU
PAKISTAN**

Key Plan :



Note:

- All dimensions to be checked and verified on Site.
- Only written dimensions to be followed. Do not scale any drawing.
- All dimensions are in feet/ Inch unless otherwise specified.
- All Structural And MEP drawings to be read in conjunction with Architecture drawings.
- The Architect / Engineer shall be notified of any discrepancy immediately.

North:



0	AUG, 2020	ISSUED FOR TENDER
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Rev. No.	DATE	DESCRIPTION
REVISIONS		

Date of Issue	August, 2020
Issued To	Client
Issued For	Tender

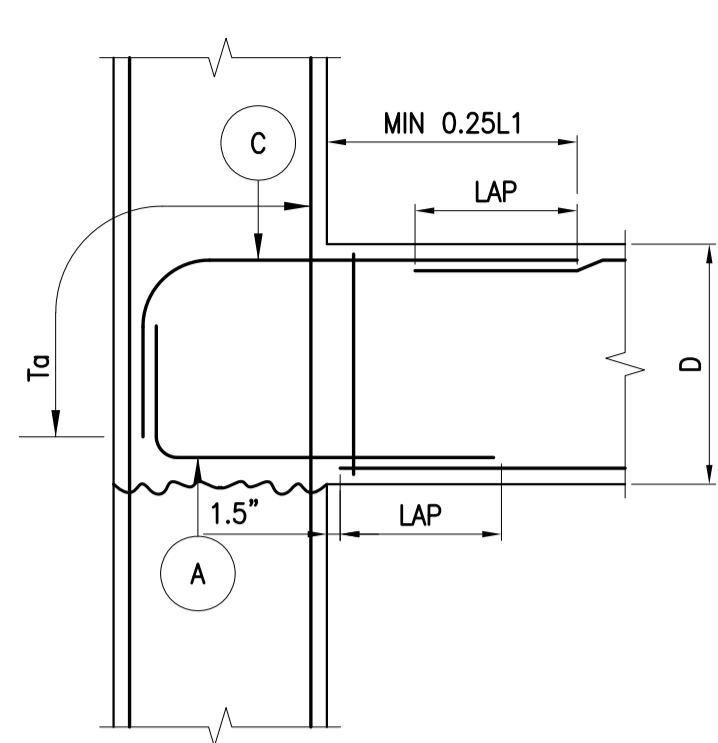
STRUCTURE

Status: **TENDER**

Building Name:
PACKAGE-02

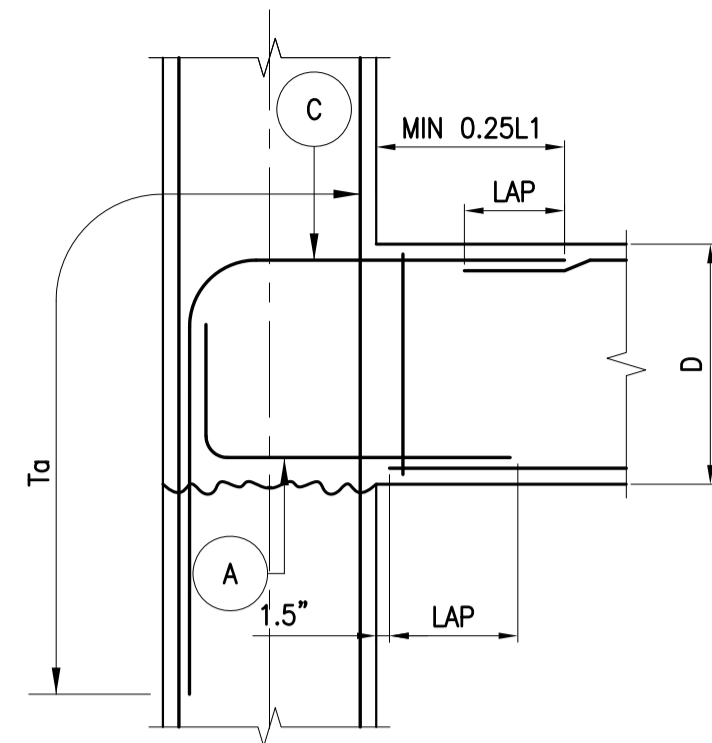
Drawing Title :
GENERAL NOTES

Designed :	Checked :	Approved :
AAK	AAK	MS
Drawn :	Date :	Scale / Sheet :
MH	JUL, 2019	AS SHOWN
Project Code :	01012	Rev. : 0
Drawing No. :	EA-01012-UOBS-GEN-S2-001	

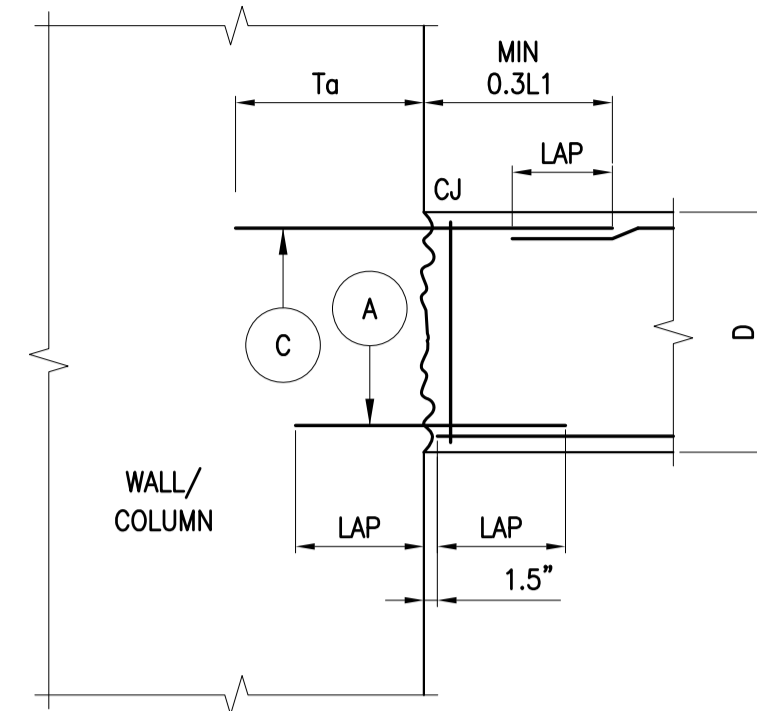


NOTE:
TYPE-1 : T_a TO BE ACHIEVED WITHIN BEAM DEPTH WITH L-BAR (EDGE COLUMN)

T_a - TENSION ANCHORAGE

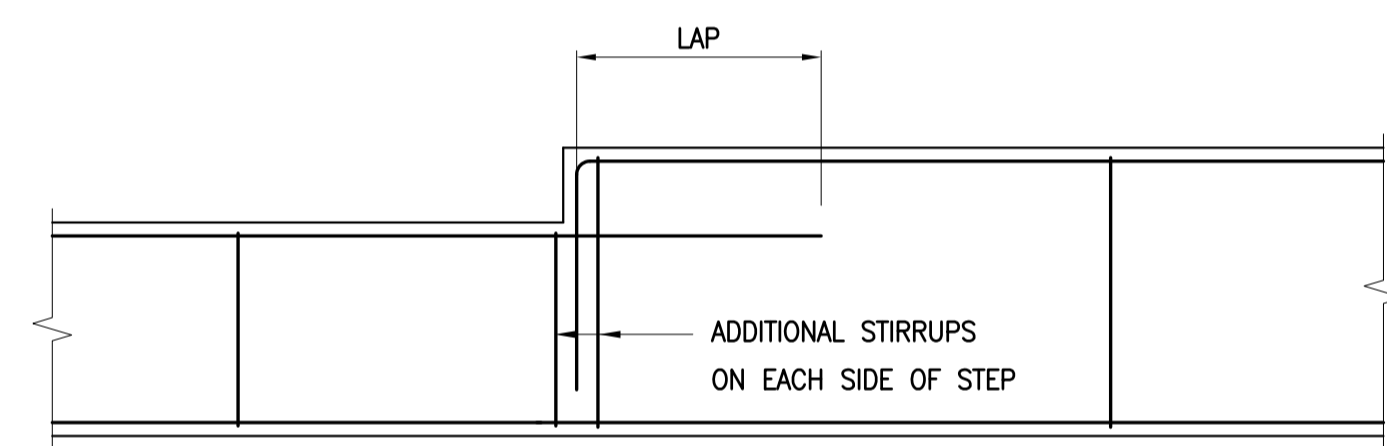


TYPE-2 : T_a TO BE ACHIEVED BY ANCHORING L-BARS INTO COLUMN. (T_a CANNOT BE ACHIEVED WITHIN BEAM DEPTH) (EDGE COLUMN)

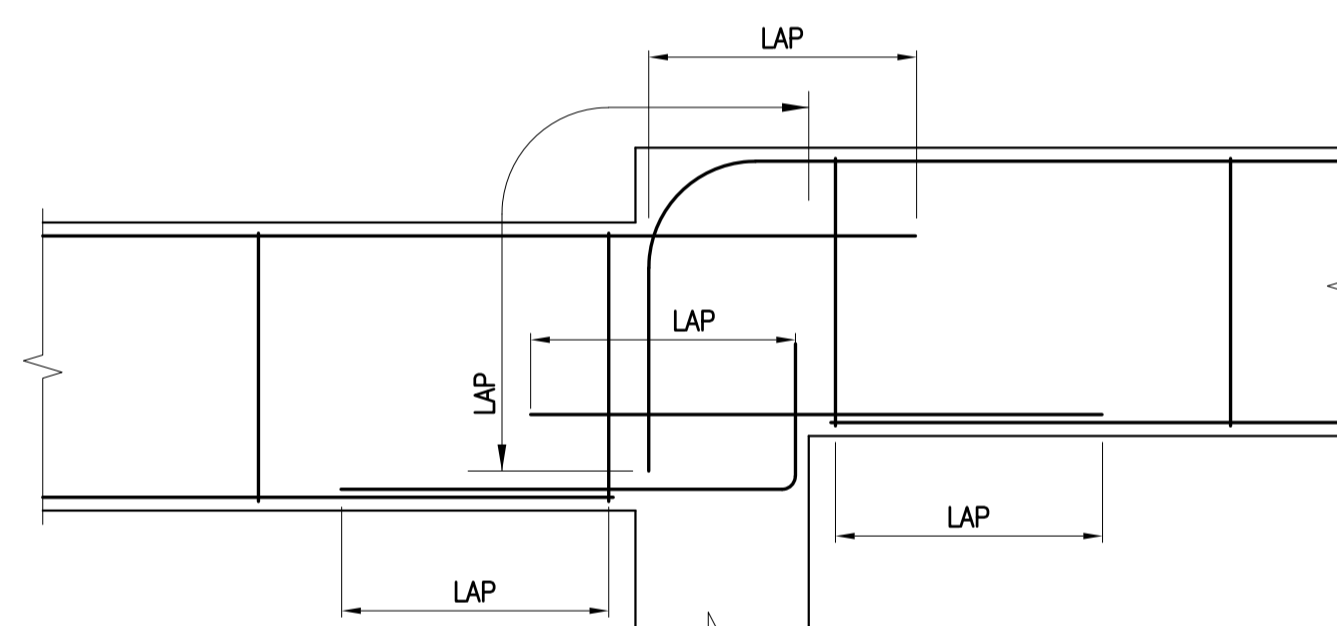


TYPE-3 : T_a TO BE ACHIEVED BY STRAIGHT BARS (LONG COLUMNS / WALLS)

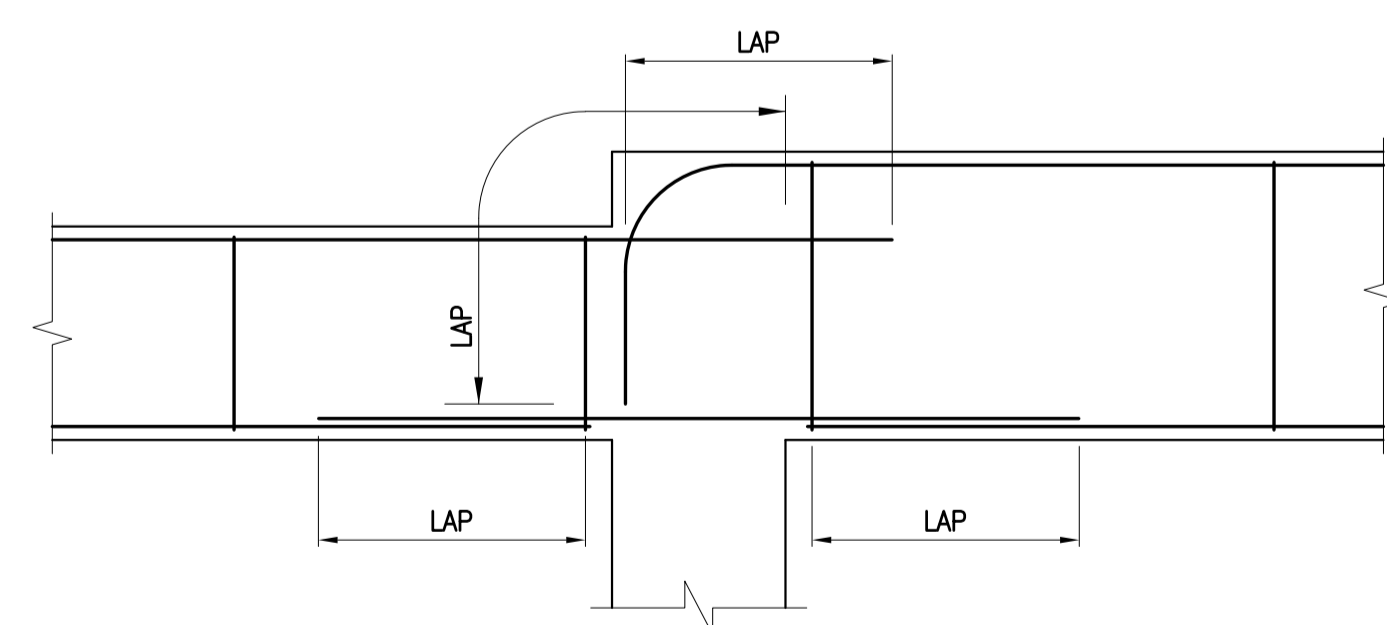
(A) DETAILS OF COLUMN BEAM INTERSECTIONS
SCALE N.T.S



(1) IN SPAN
SCALE N.T.S

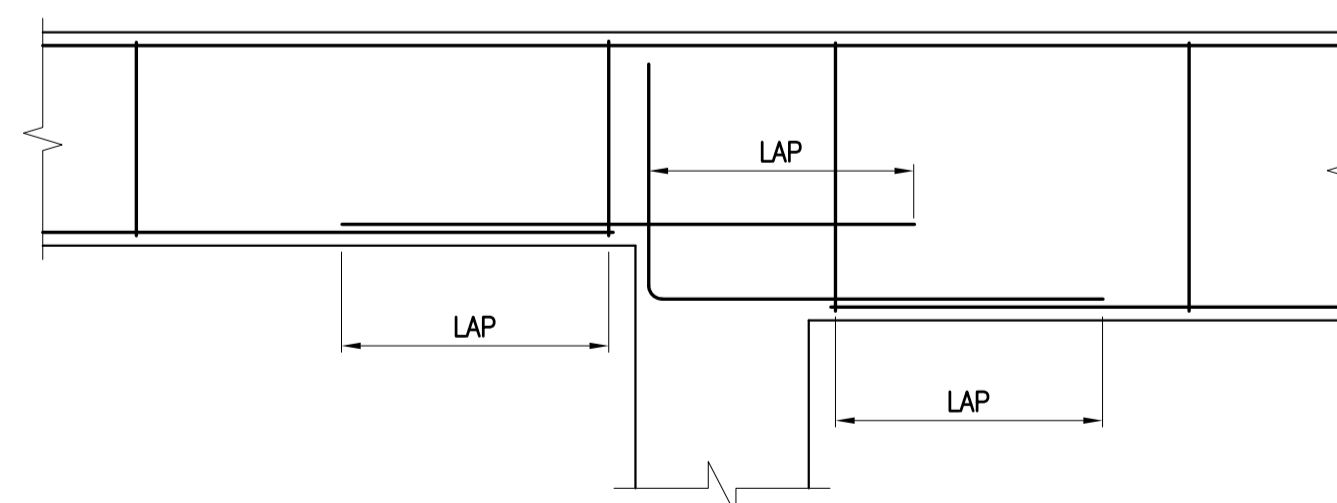


(2) AT SUPPORT CASE-1
SCALE N.T.S



(3) AT SUPPORT CASE-2
SCALE N.T.S

NOTE:
1. COLUMN REINFORCEMENT OMITTED FOR CLARITY



(4) AT SUPPORT CASE-3
SCALE N.T.S

(B) BEAM STEP DETAILS
SCALE N.T.S

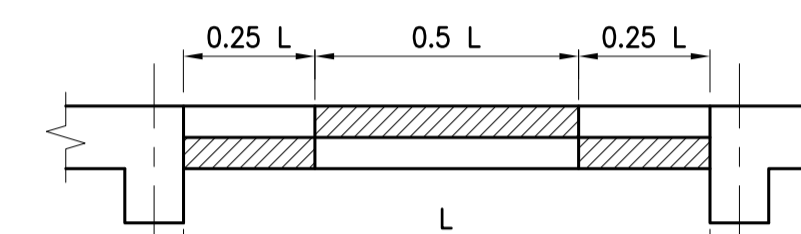
NOTES :-

- TO AVOID EXCESSIVE LAPPING THE CONTRACTOR MAY PROPOSE ALTERNATIVE REINFORCEMENT ARRANGEMENTS FOR CONTINUOUS BEAMS FOR THE ENGINEER'S APPROVAL. THE ALTERNATIVE ARRANGEMENTS MUST NOT RESULT IN LESSER REINFORCEMENT BEING PROVIDED IN ANY LOCATION THAN THAT INDICATED IN THE BEAM SCHEDULE.
- CONTRACTOR MAY PROPOSE ALTERNATIVE DETAILING FOR CONTINUOUS BEAMS FOR CONSIDERING REINFORCEMENT TO RUN CONTINUOUSLY ACROSS BEAM / COLUMN JUNCTION UTILIZING THE MAXIMUM LENGTH OF BAR AS MUCH AS POSSIBLE. LAPS WHERE REQUIRED SHOULD BE PROVIDED ONLY AT THE LOCATIONS SHOWN ON THE TYPICAL DETAILS.
- FOR DETAILS OF BARS MARKED THUS (A), (B), (C) ETC. SEE BEAM SCHEDULES.

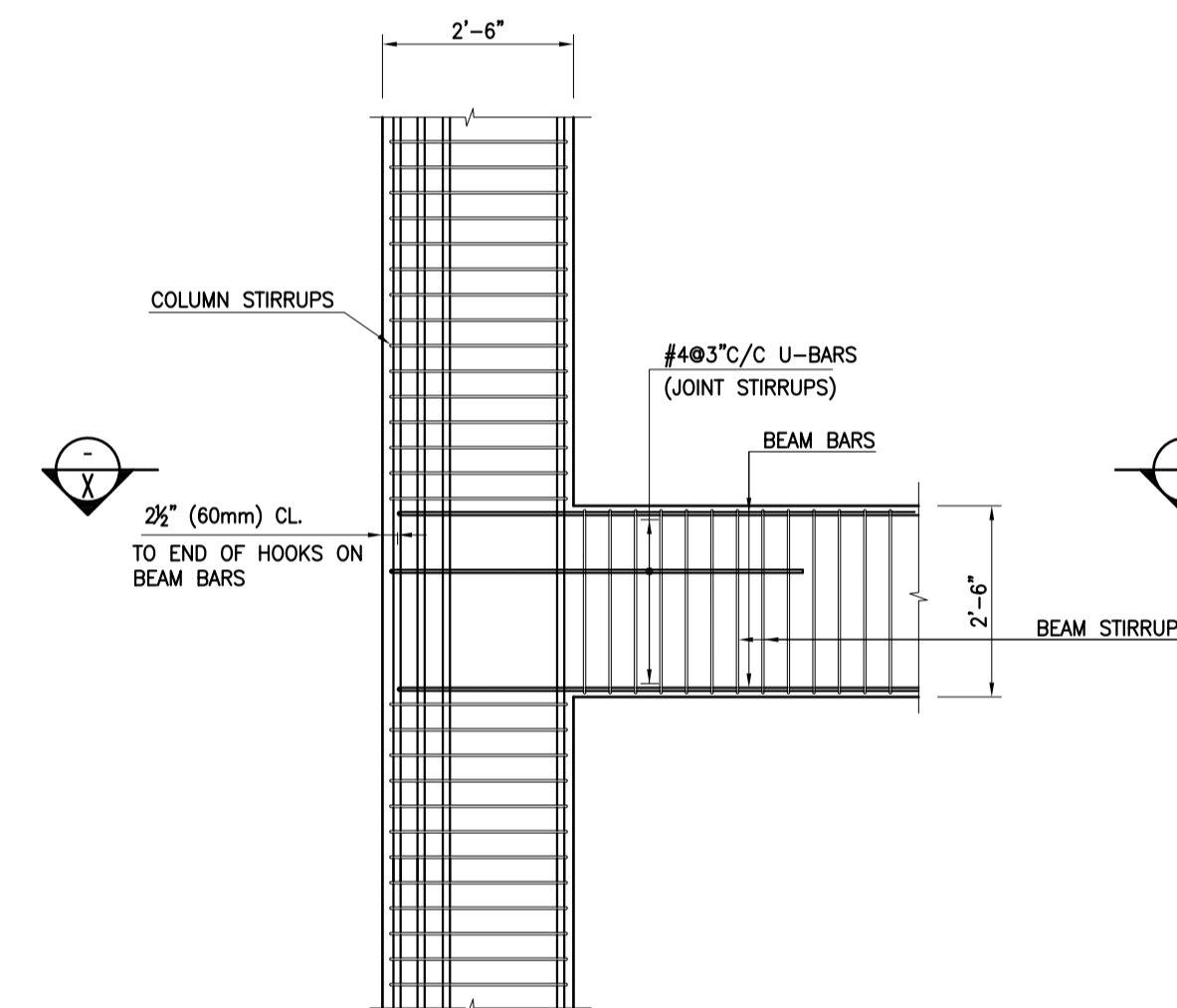
- MAXIMUM CLEAR DISTANCE BETWEEN LONGITUDINAL BARS = 6" UNLESS SCHEDULED OTHERWISE.
- SIDE REINFORCEMENT FOR ALL BEAMS DEEPER THAN 2'-6" (OVERALL) UNO

WIDTH OF BEAM	SIDE REFT
8"	#4@10"
12"	#4@8"
16"	#4@6"
21" OR GREATER THAN 21"	#5@8"

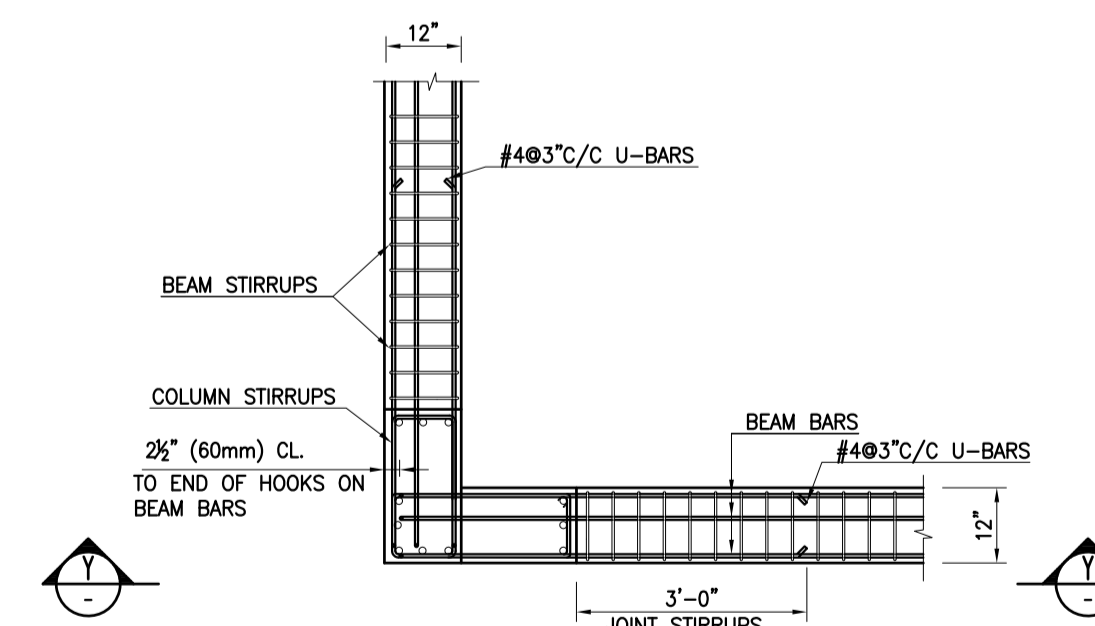
- WHERE REFT IS TO BE DETAILED CONTINUOUSLY, LAPS IN REFT MAY OCCUR ONLY IN SHADED AREAS SHOWN BELOW:



(C) LAP LOCATIONS
SCALE N.T.S



TYP. VERTICAL SECTION Y-Y
SCALE: 1/2"=1'-0"



TYP. JOINT DETAIL AT SECTION X-X
SCALE: 1/2"=1'-0"

Client :



Consultant :

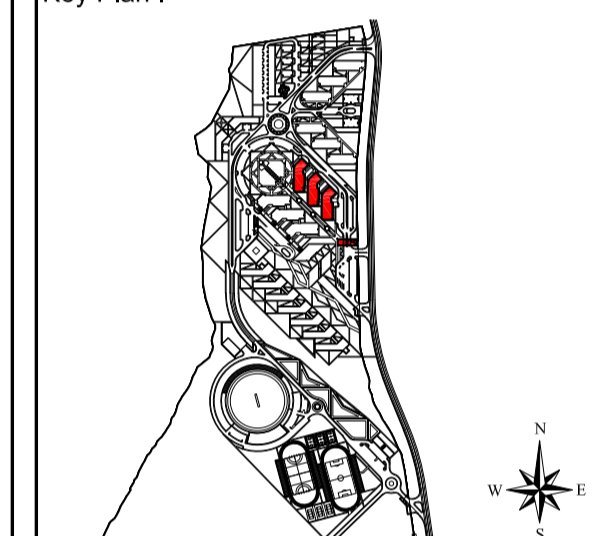


EA Consulting Pvt Ltd
Head Office: AL-9, 15th Lane, Khayaban-e-Hilal, Phase 7, Defence Housing Authority, Karachi, 75500 - Pakistan
Phone No. : 111-111-584, Fax No. : 584-1825
Email : info@eaworld.com | www.eaworld.com

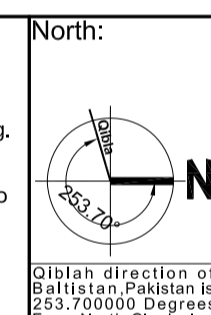
Project :

UNIVERSITY OF BALTISTAN SKARDU PAKISTAN

Key Plan :



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0	AUG. 2020	ISSUED FOR TENDER

Rev. No.	DATE	DESCRIPTION

Date of Issue	August, 2020
Issued To	Client
Issued For	Tender

STRUCTURE

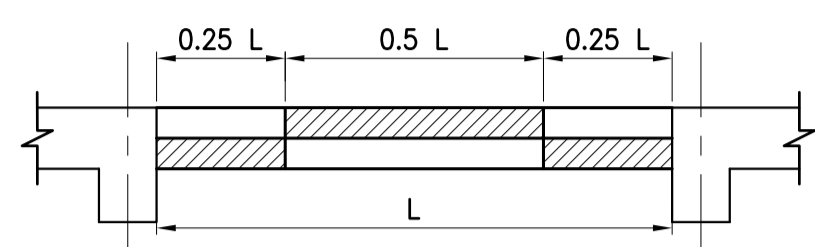
Status: **TENDER**

Building Name: **PACKAGE-02**

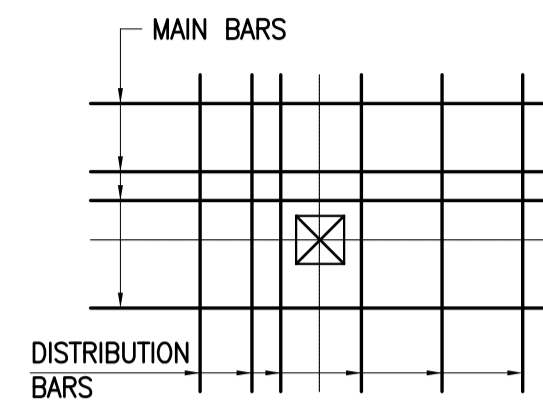
Drawing Title : **STANDARD DETAILS (SHEET 1 OF 5)**

Designed :	Checked :	Approved :
SA	M.L	M.S
Drawn :	Date :	Scale / Sheet :
M.H	JUL, 2019	AS SHOWN
Project Code :	01012	Rev. : 0

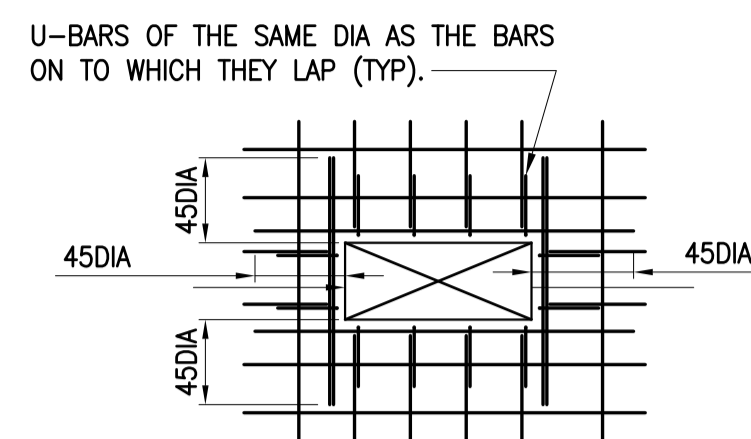
Drawing No. : **EA-01012-UOBS-GEN-S2-002**



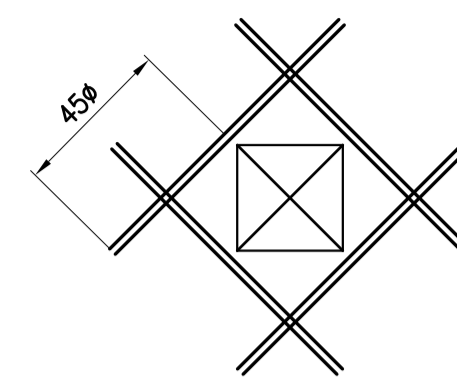
A LAP LOCATIONS
SCALE N.T.S



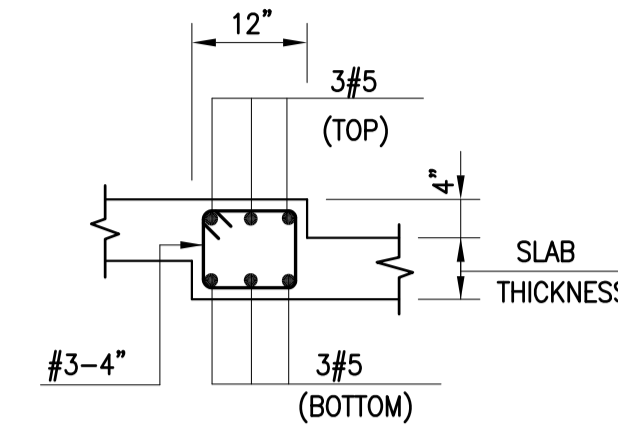
B OPENINGS MORE THAN 6"
SCALE N.T.S
BARS MAY BE DISPLACED NO ADDITIONAL REINF. NECESSARY



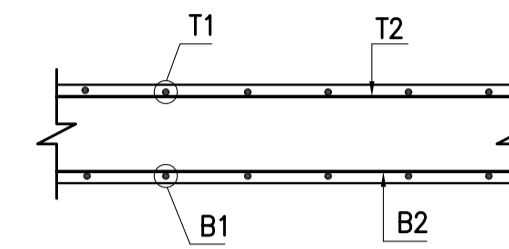
C OPENINGS MORE THAN 6" AND LESS THAN 18"
SCALE N.T.S
CUT BARS INTERRUPTED BY HOLE. PROVIDE TRIMMER BARS OF SAME DIA. TYPE & NUMBER AS CUT BARS



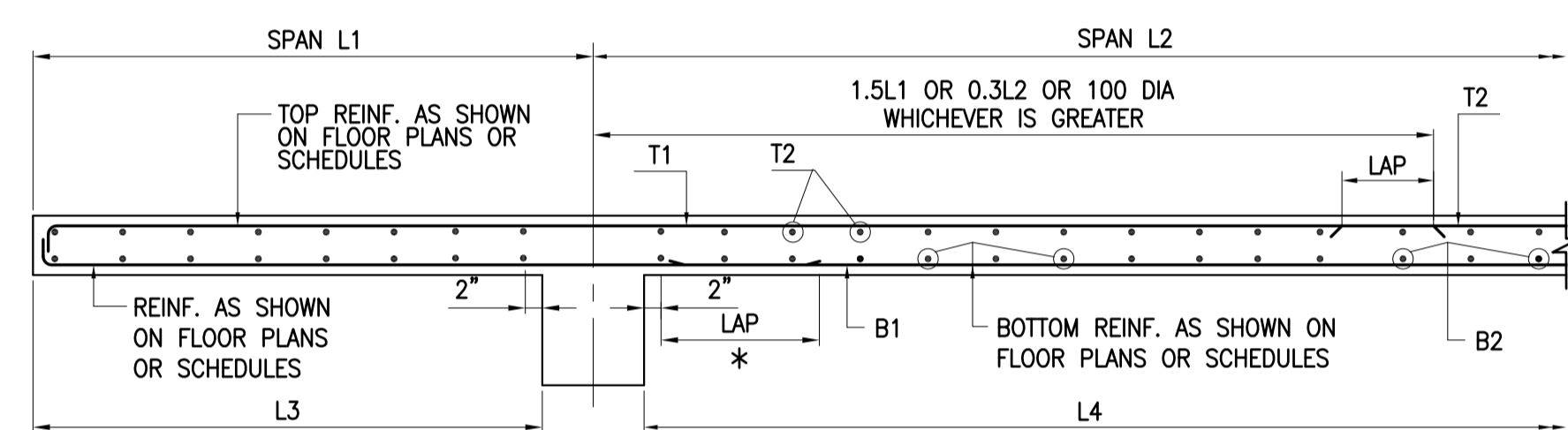
D OPENINGS MORE THAN 18" AND LESS THAN 36"
SCALE N.T.S
PROVIDE TRIMMER BARS AS PREVIOUS DETAIL IN ADDITION PROVIDE DIAGONAL TRIMMER OF SAME DIA. TYPE & NUMBER AS PREVIOUS DETAIL TRIMMERS.



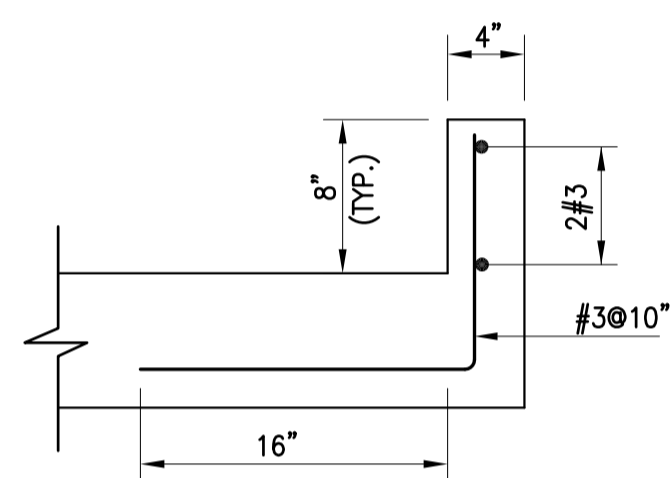
E TYP. SECTION OF FOLD AT SUNK SLAB
SCALE N.T.S



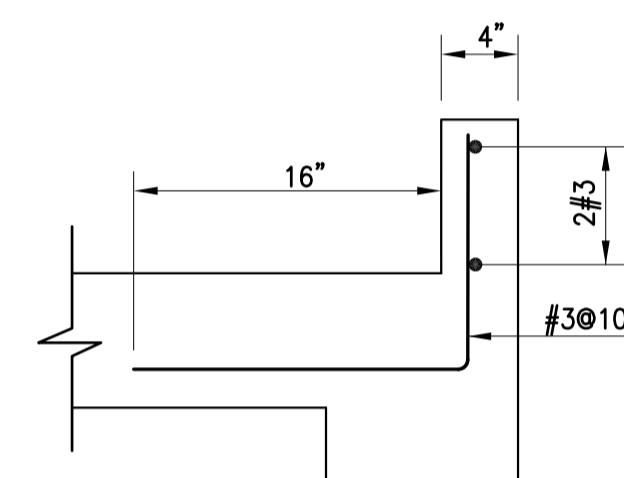
F NOTATION FOR PLACEMENT OF REINFORCEMENT
SCALE N.T.S
T1 DENOTES FIRST (OUTERMOST) LAYER OF TOP REINF. T2 DENOTES SECOND LAYER TOP REINF.
B1 DENOTES FIRST (OUTERMOST) LAYER OF BOTTOM REINF. B2 DENOTES SECOND LAYER OF BOTTOM REINF.. ETC



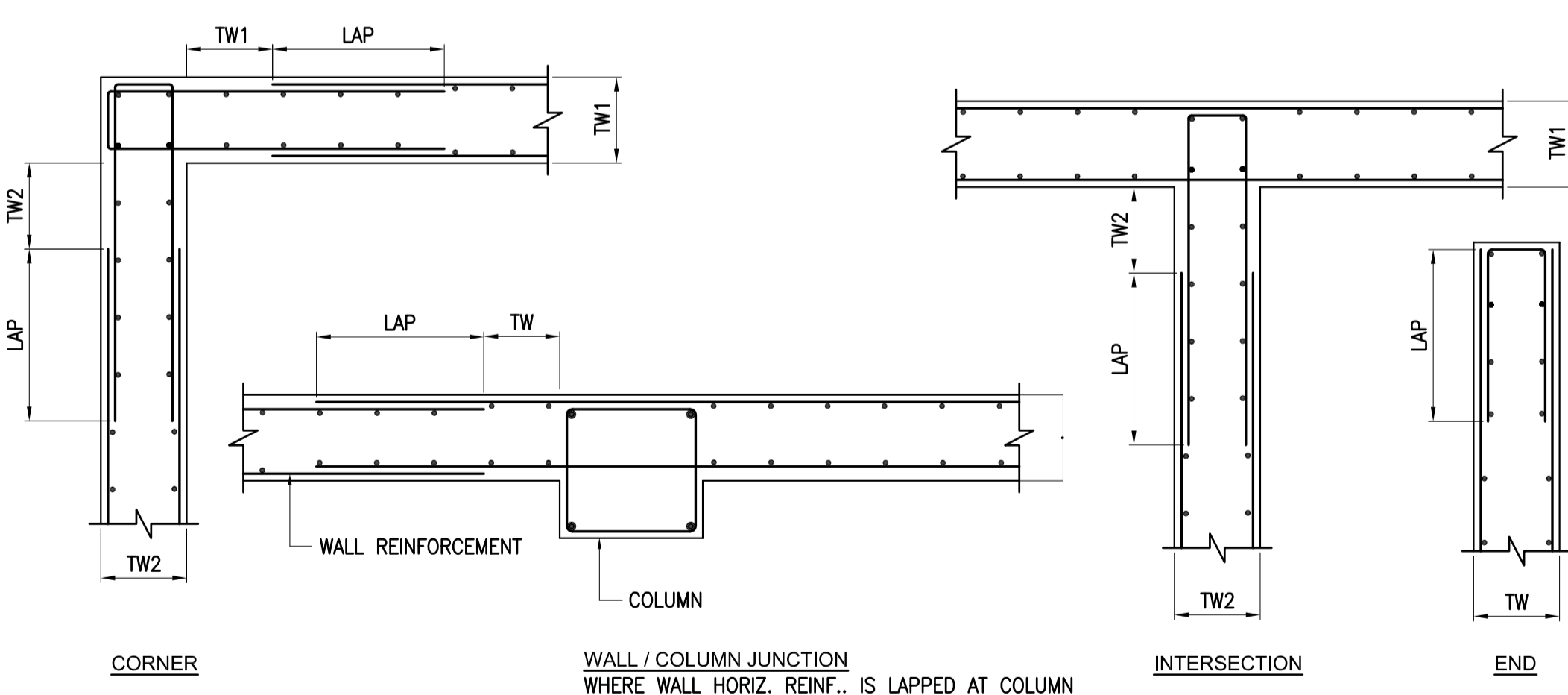
G CANTILEVER SLAB
SCALE N.T.S
MULTIPLE LAYERS OF REINF. ARE NUMBERED IN ASCENDING ORDER FROM THE OUTERMOST LAYER INWARDS AS SHOWN BELOW:



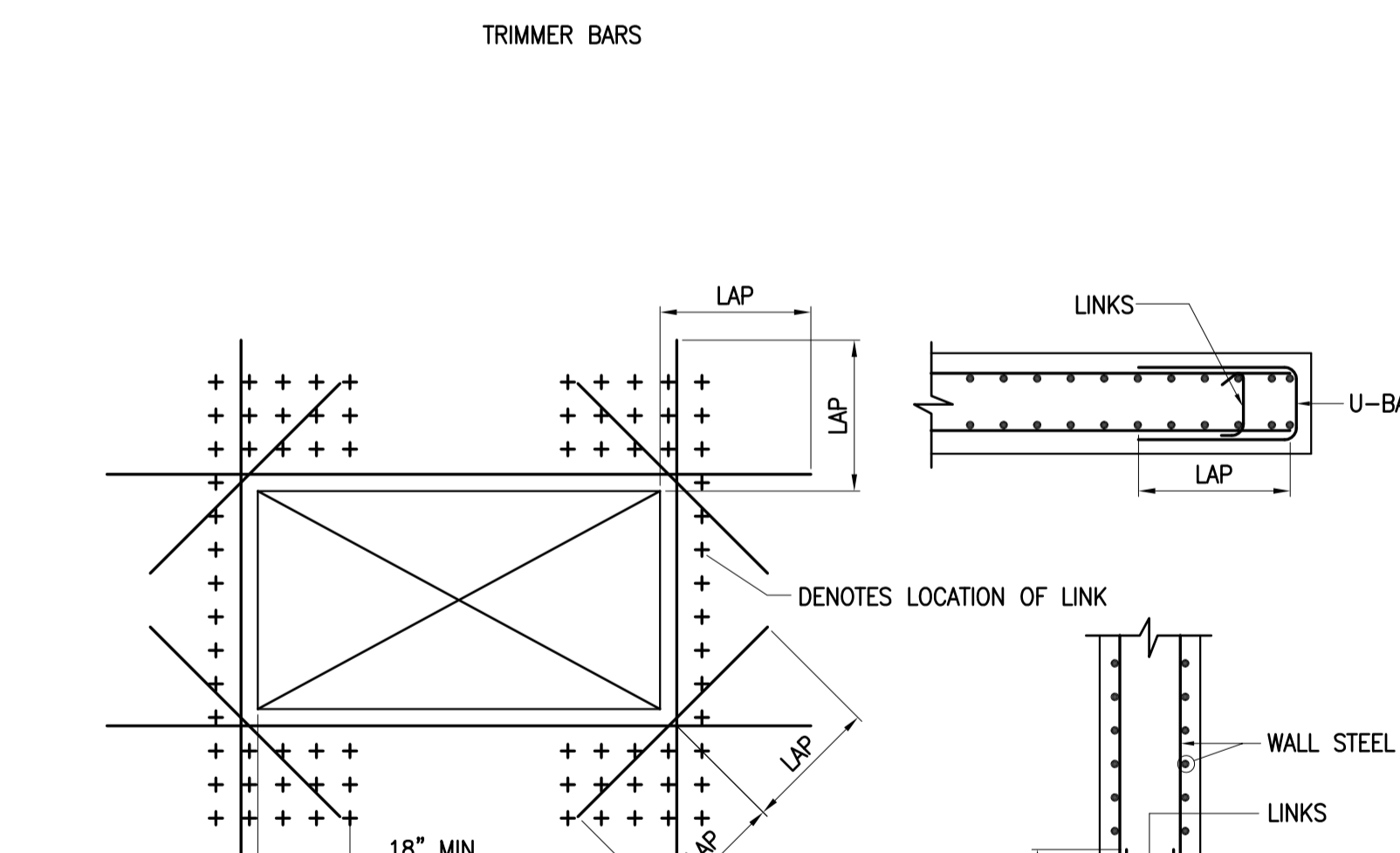
H TYPICAL OPENING UPSTAND REINFORCEMENT DETAIL
SCALE N.T.S



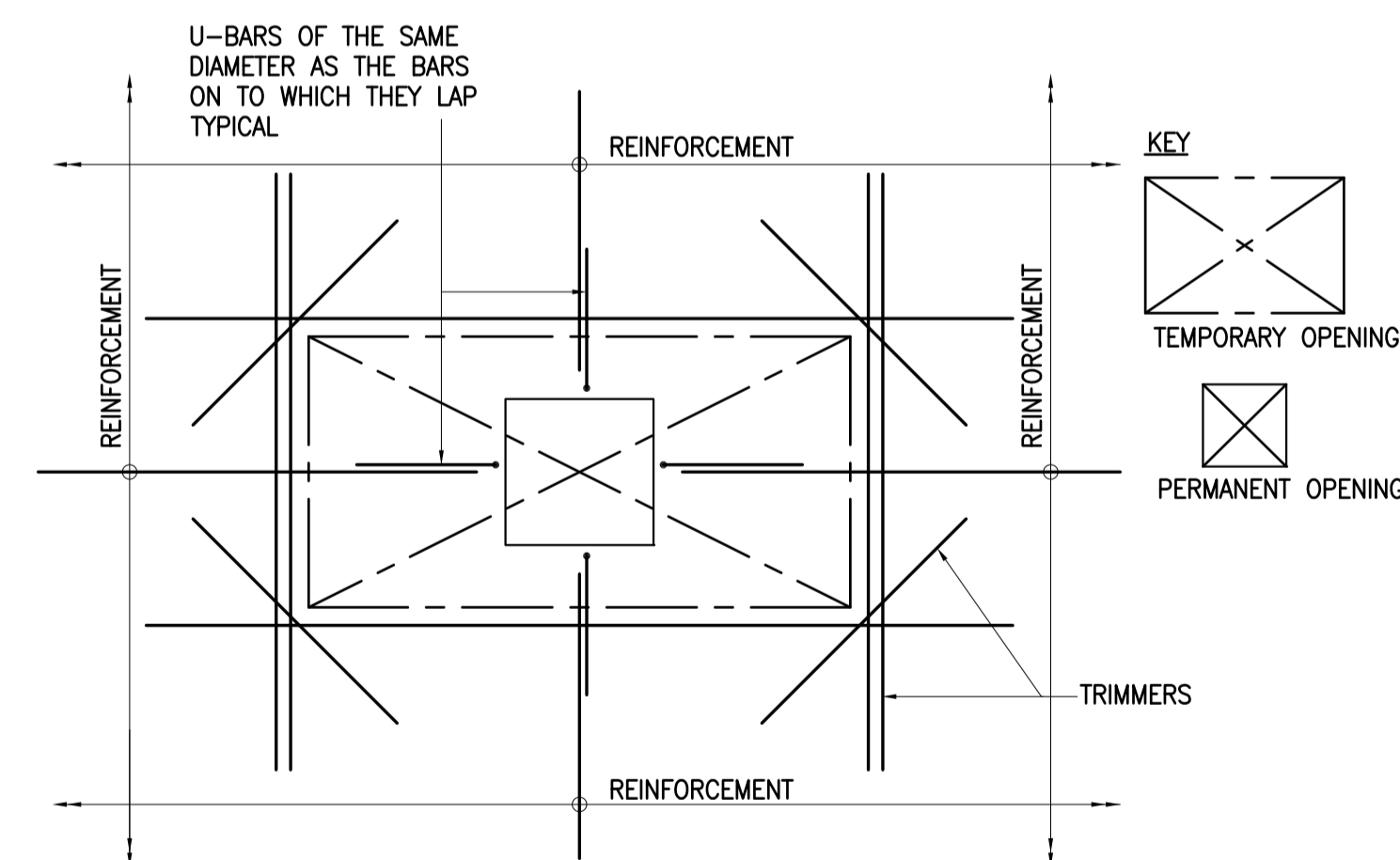
I TRIMMING OF OPENINGS IN SLABS
SCALE N.T.S



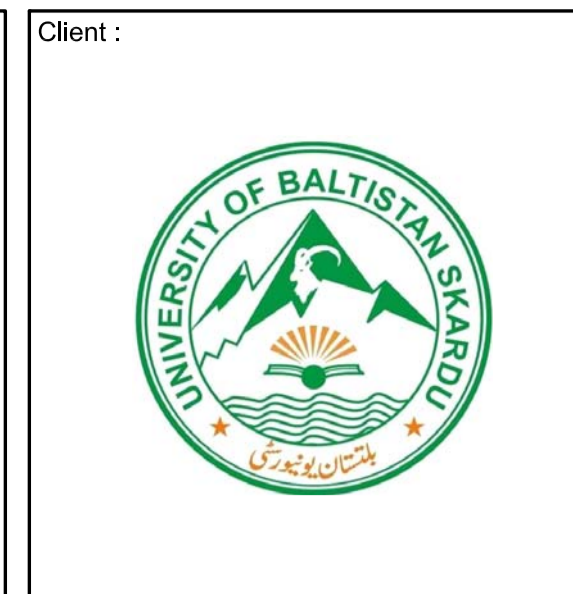
J WALL JUNCTION DETAILS
SCALE N.T.S
1. TW, TW1 & TW2 ARE WALL THICKNESSES



K TRIMMING OF HOLES IN WALLS
SCALE N.T.S
NOTES:
1. TRIMMER BARS ARE OF SAME DIA & TYPE AS: VERTICAL BARS FOR VERTICAL TRIMMERS HORIZONTAL BARS FOR HORIZONTAL TRIMMERS VERTICAL BARS FOR DIAGONAL TRIMMERS BUT NOT LESS THAN 5/8" DIA.
1A. TOTAL AREA OF VERTICAL TRIMMERS SHALL NOT BE LESS THAN THE AREA OF VERTICAL BARS CURTAILED DUE TO OPENING & TOTAL AREA OF HORIZONTAL TRIMMERS SHALL NOT BE LESS THAN THE AREA OF HORIZONTAL BARS CURTAILED DUE TO OPENING. THESE TRIMMERS SHALL BE DISTRIBUTED EQUALLY ON BOTH SIDES OF OPENING
2. LINKS SHALL BE #3 BARS AND SHALL CONFORM WITH THE SPACING OF WALL REINFORCEMENT, BUT SPACING NOT TO EXCEED 8"
3. THIS DETAIL APPLIES TO OPENINGS >10".

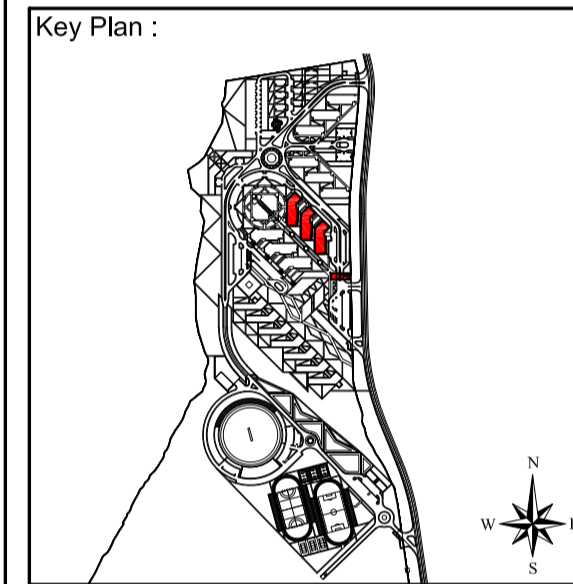


L DETAIL WHERE TEMPORARY & PERMANENT OPENINGS ARE CONCURRENT
SCALE N.T.S
NOTES:
1. TRIMMERS ARE FIXED TO TEMPORARY OPENING (BOXOUT) DIMENSIONS.
2. REINFORCEMENT TERMINATES AT PERMANENT OPENING. IF PERMANENT OPENING IS OMITTED THEN REINFORCEMENT IS CONTINUOUS THROUGHOUT UNO.



Client :
Consultant :
EA Consulting Pvt Ltd
Head Office: AL-9, 15th Lane, Khayaban-e-Hilal, Phase 7, Defence Housing Authority, Karachi, 75500 - Pakistan
Phone No. : 111-111-584, Fax No. : 584-1825
Email : info@eaworld.com | www.eaworld.com

Project :
UNIVERSITY OF BALTISTAN SKARDU PAKISTAN



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Issued To: Client
Issued For: Tender

STRUCTURE

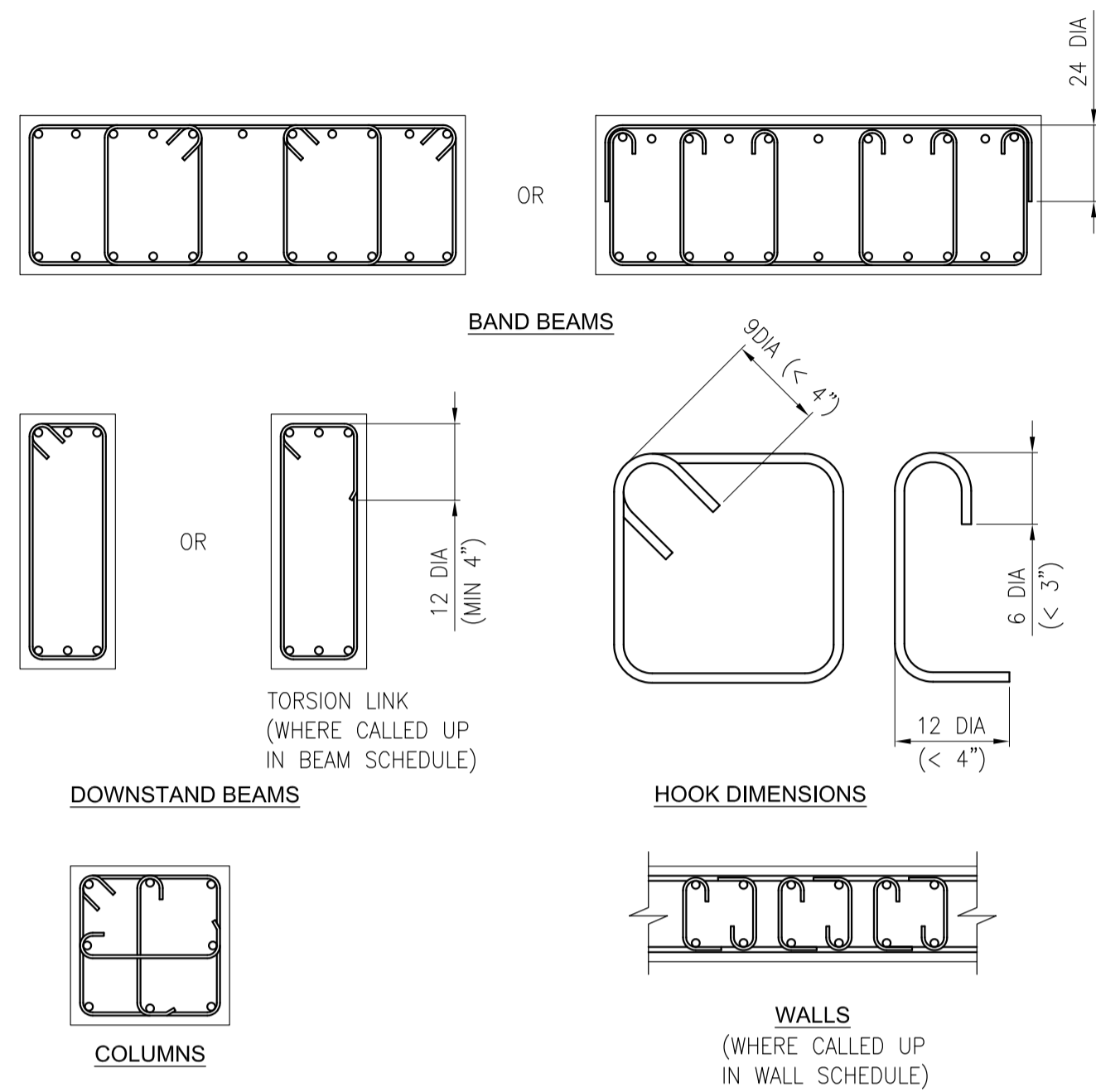
Status: **TENDER**

Building Name:
PACKAGE-02

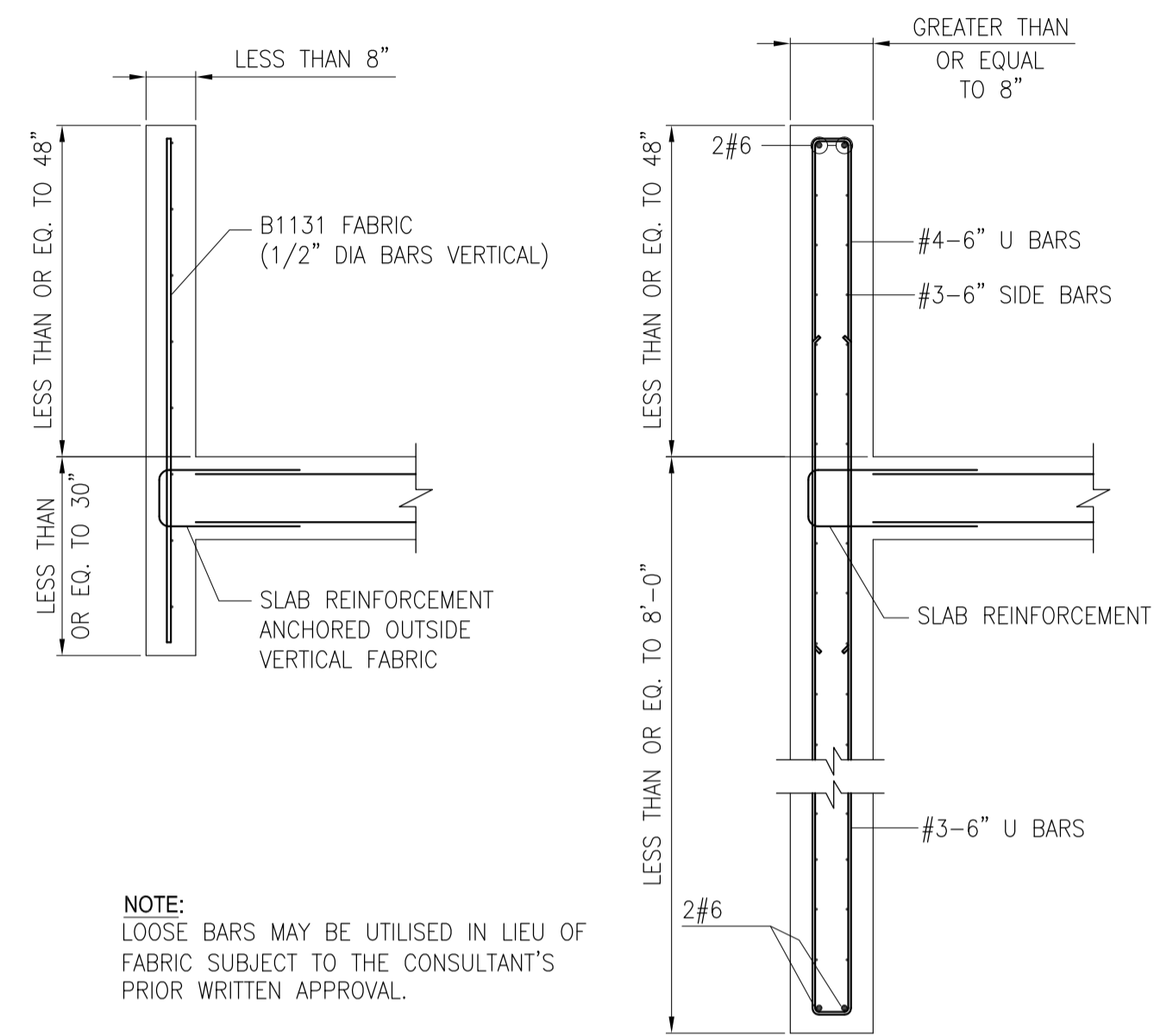
Drawing Title:
STANDARD DETAILS (SHEET 2 OF 5)

Designed : S.A	Checked : M.L	Approved : M.S
Drawn : M.H	Date : JUL. 2019	Scale / Sheet : AS SHOWN
Project Code : 01012	Rev. : 0	

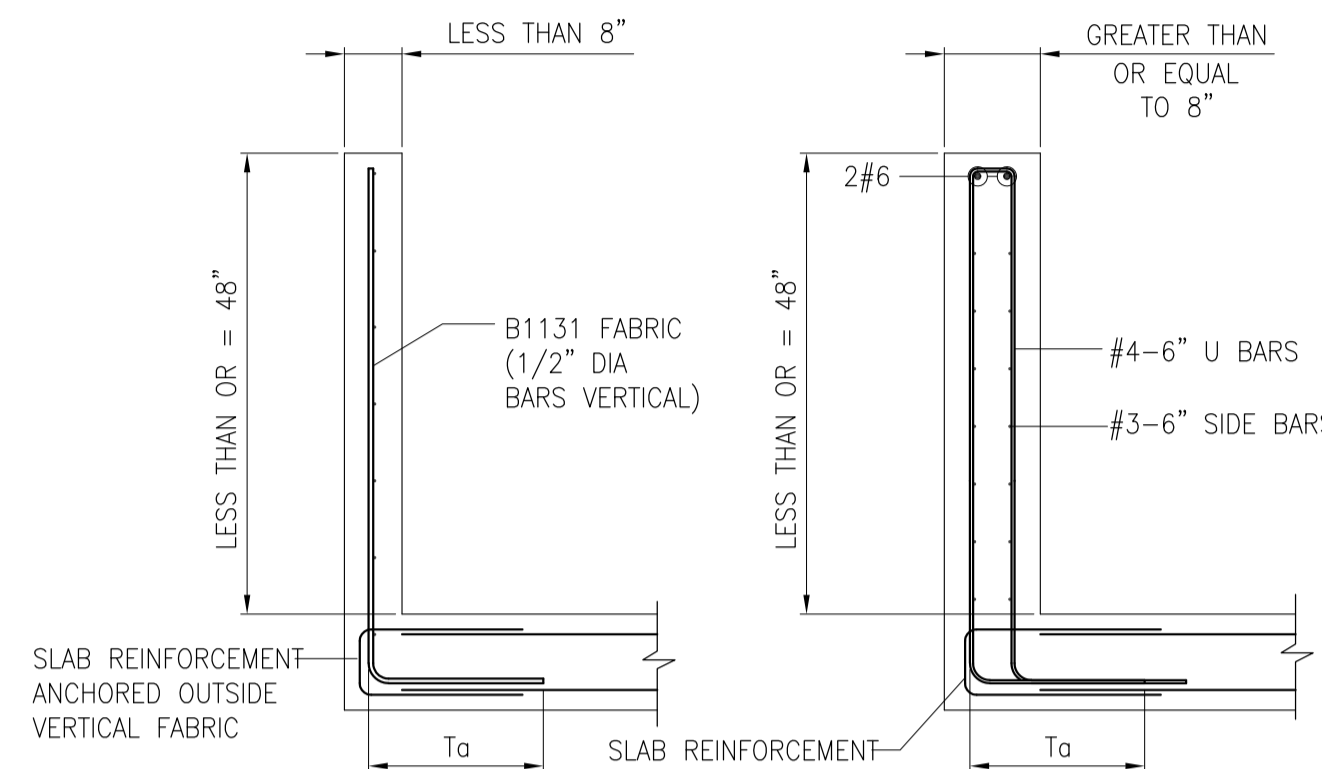
Drawing No. : EA-01012-UOBS-GEN-S2-003



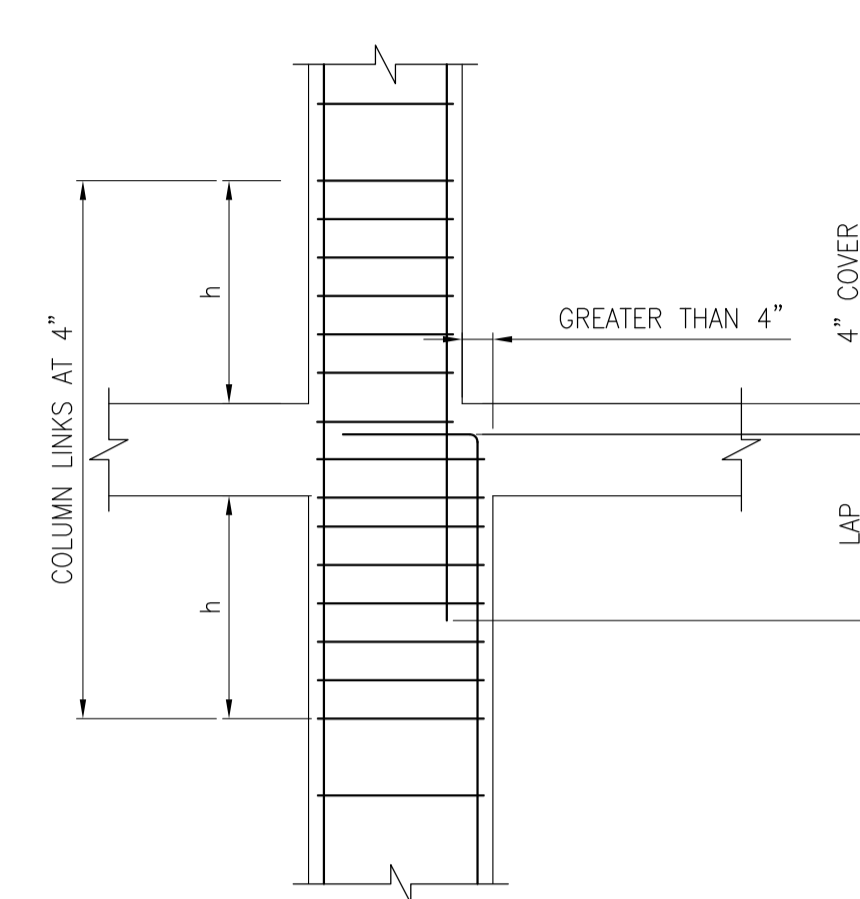
A TYPICAL LINK SHAPES
SCALE N.T.S.



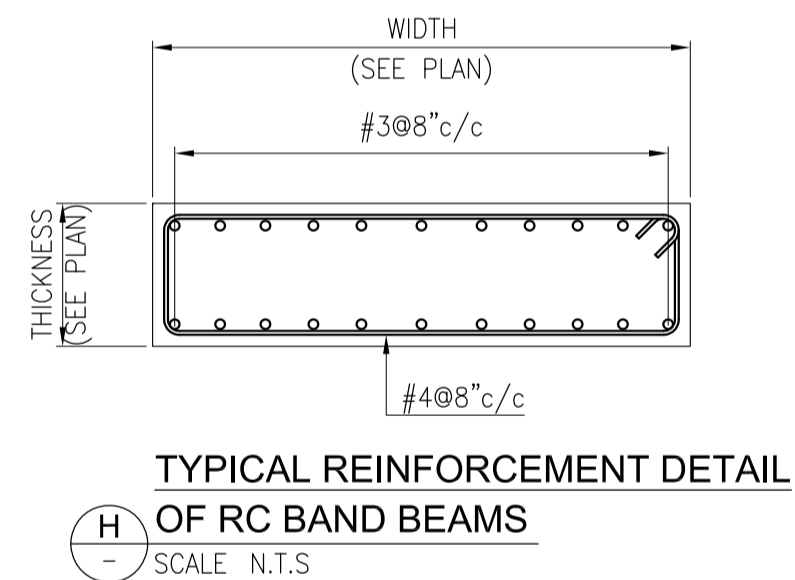
B UPSTAND/DOWNSTAND REINFORCEMENT
SCALE N.T.S.



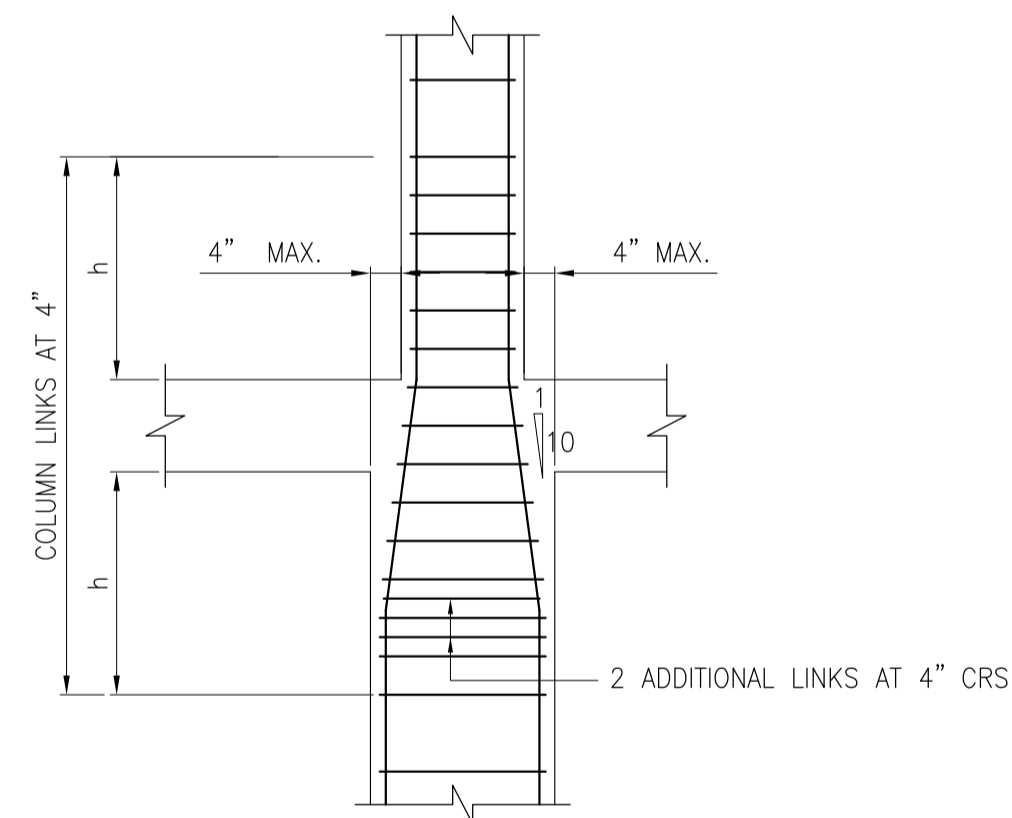
C UPSTAND REINFORCEMENT
SCALE N.T.S.



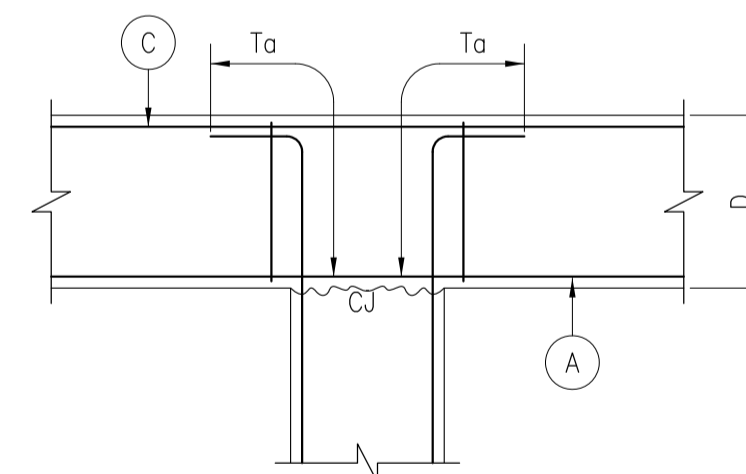
D SYMMETRICAL COLUMN JUNCTION SHOWN WITH STEP GREATER THAN 4\"/>
SCALE N.T.S.
NOTE: WHERE STEP IS 4\"/>



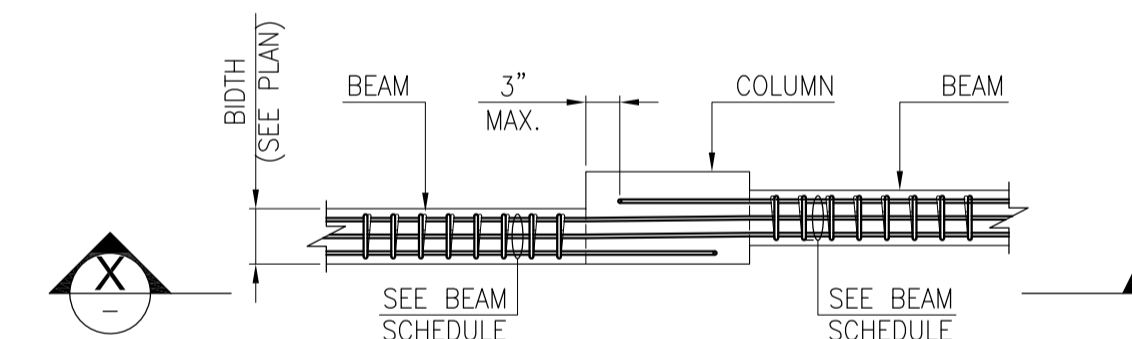
H TYPICAL REINFORCEMENT DETAIL OF RC BAND BEAMS
SCALE N.T.S.



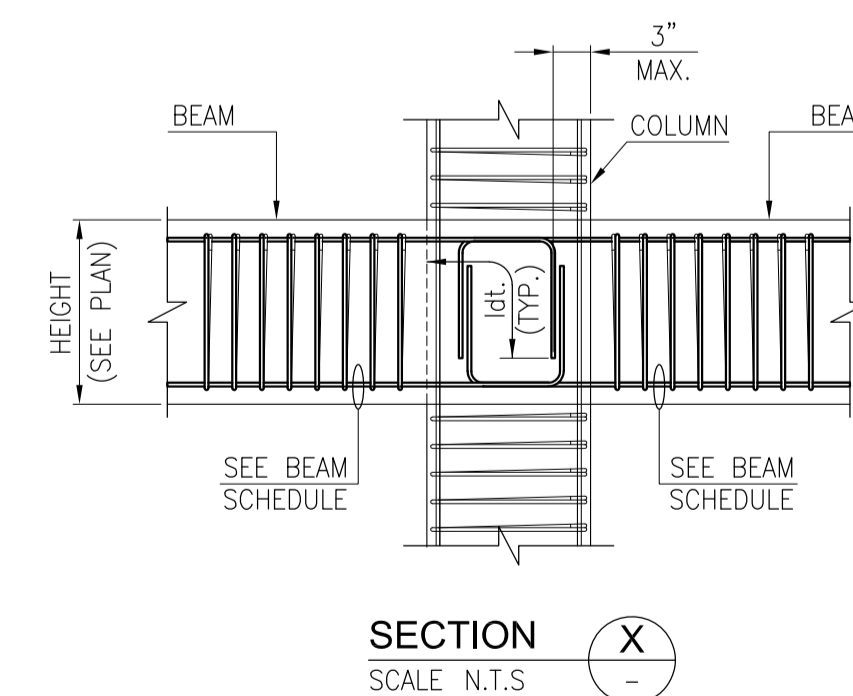
E SYMMETRICAL COLUMN JUNCTION SHOWN WITH STEP 4\"/>



F COLUMN BEAM JUNCTION DETAIL SHOWN WITH STEP 4\"/>



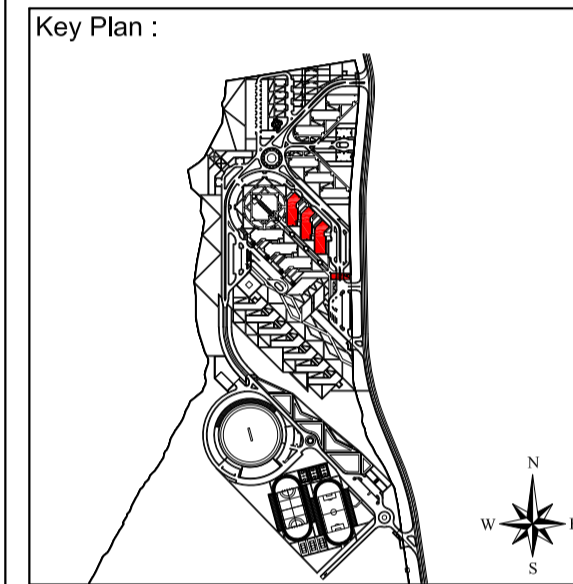
G TYPICAL REINFORCEMENT DETAIL OF BEAMS OFFSET (PLAN)
SCALE N.T.S.



X SECTION
SCALE N.T.S.



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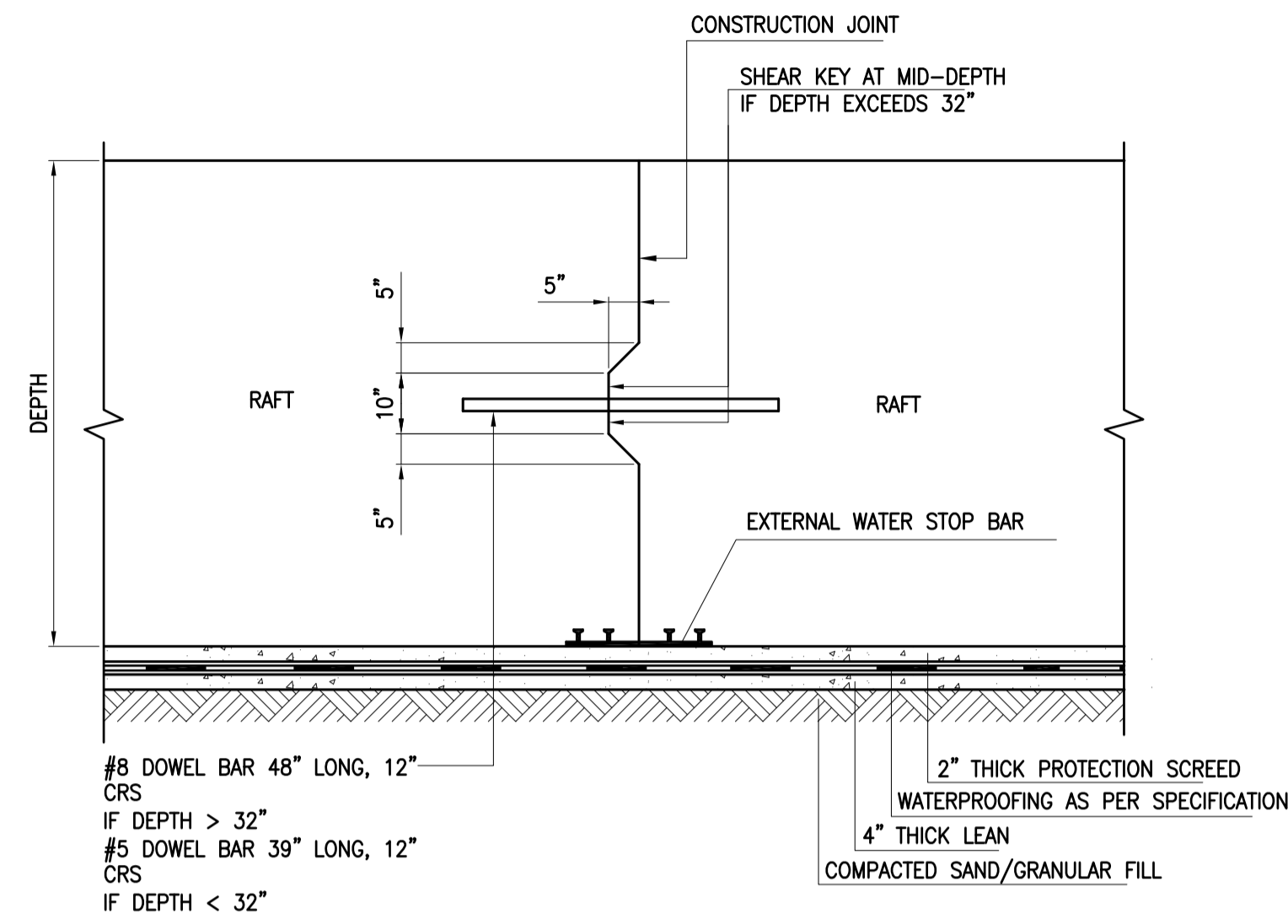
STRUCTURE
TENDER

Building Name:
PACKAGE-02

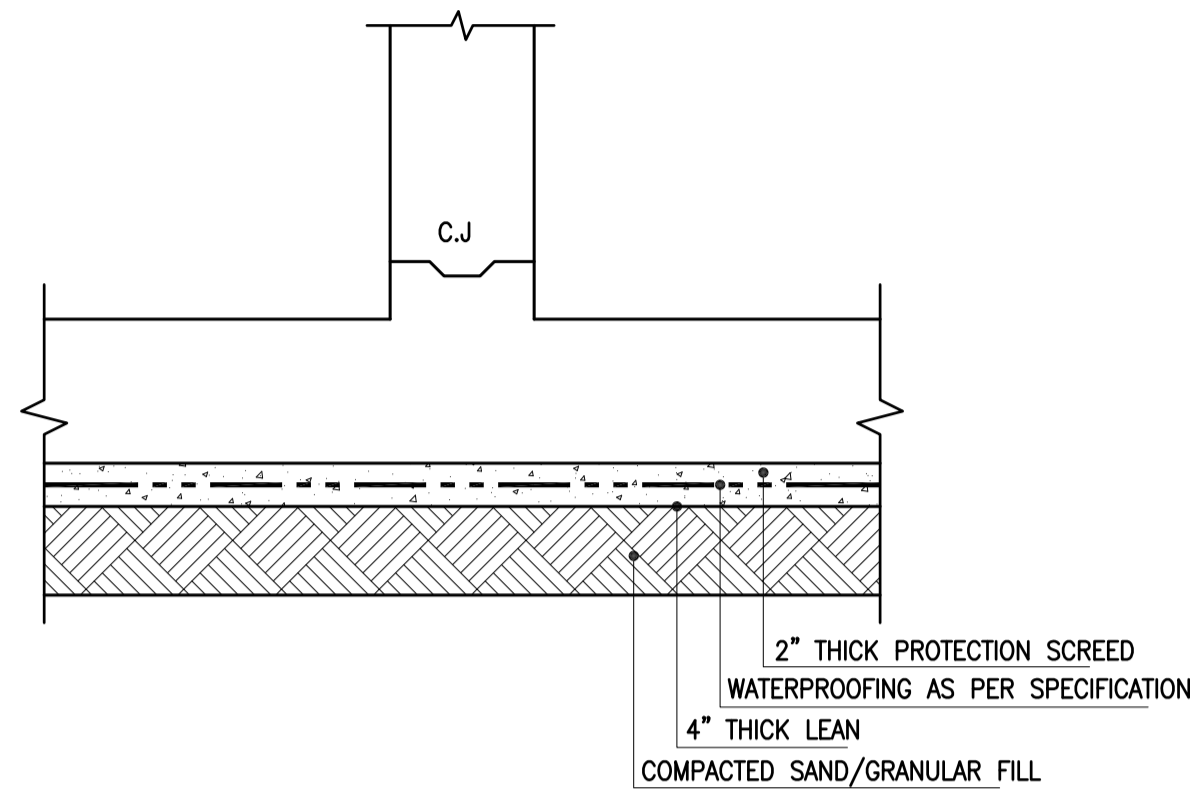
Drawing Title:
STANDARD DETAILS (SHEET 3 OF 5)

Designed : S.A. **Checked :** M.L. **Approved :** M.S.
Drawn : MH **Date :** JUL. 2019 **Scale / Sheet :** AS SHOWN
Project Code : 01012 **Rev. :** 0

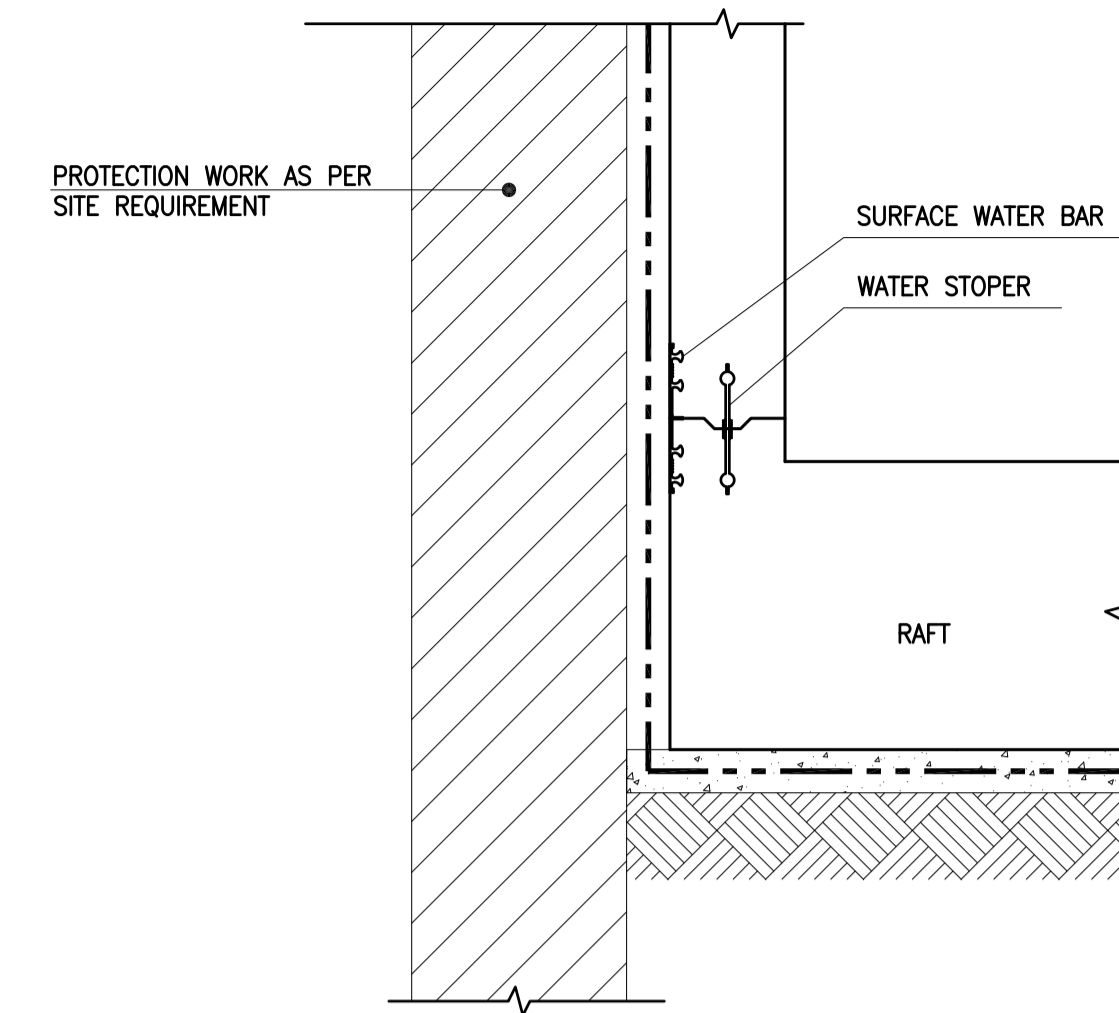
Drawing No. : EA-01012-UOBS-GEN-S2-004



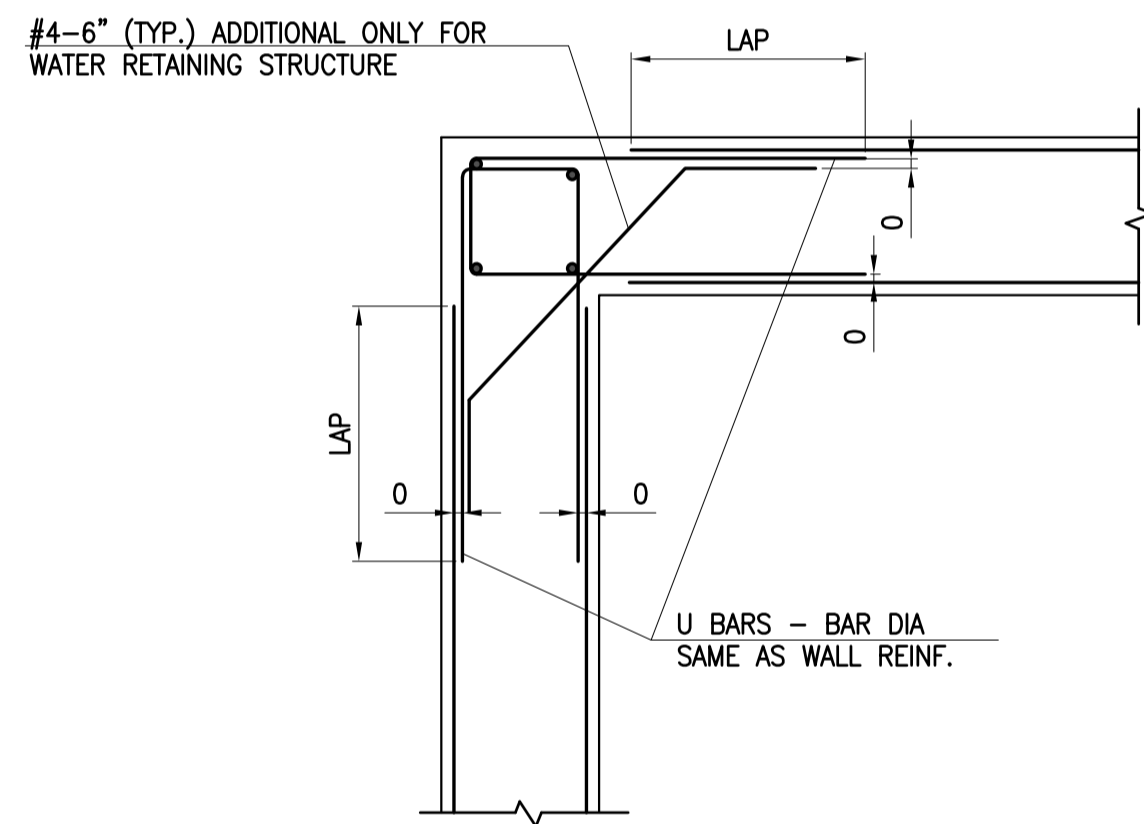
(A) DETAIL OF CONSTRUCTION JOINT IN RAFT
SCALE N.T.S



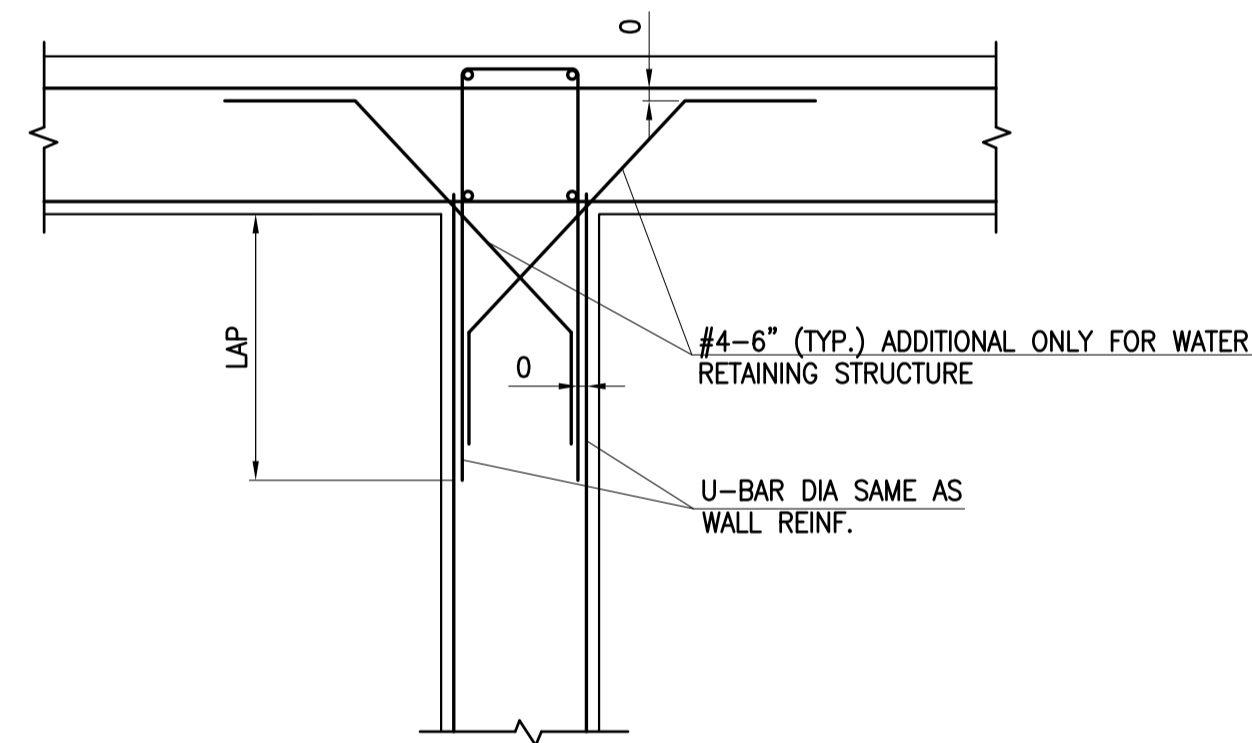
(B) WATER PROOFING DETAIL FOR LIFT FOUNDATION
SCALE N.T.S



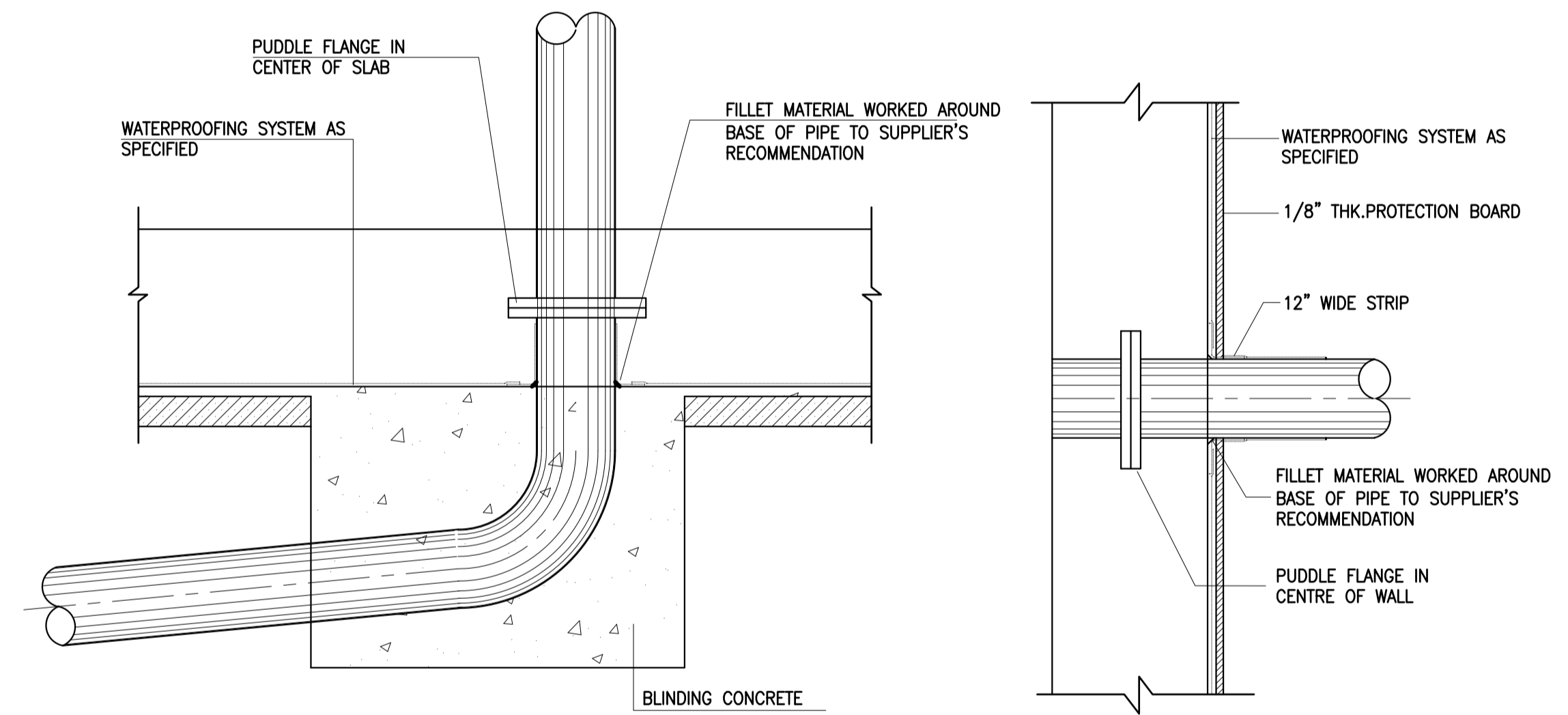
(C) TYPICAL WATER STOPPER DETAIL
SCALE N.T.S



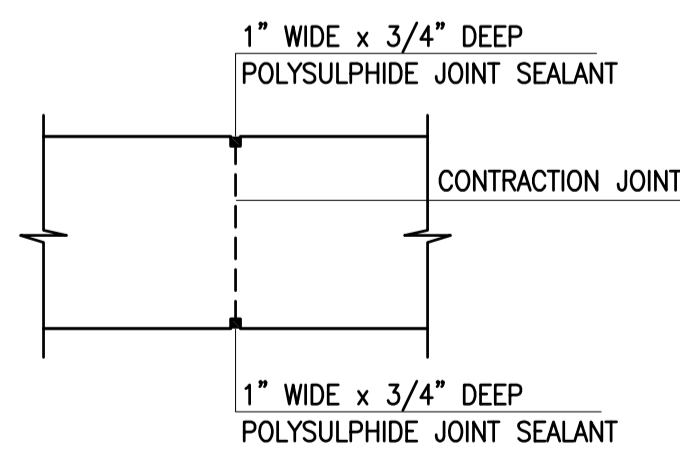
(D) TYPICAL CORNER DETAIL FOR WATER TANK WALL U.N.O
SCALE N.T.S



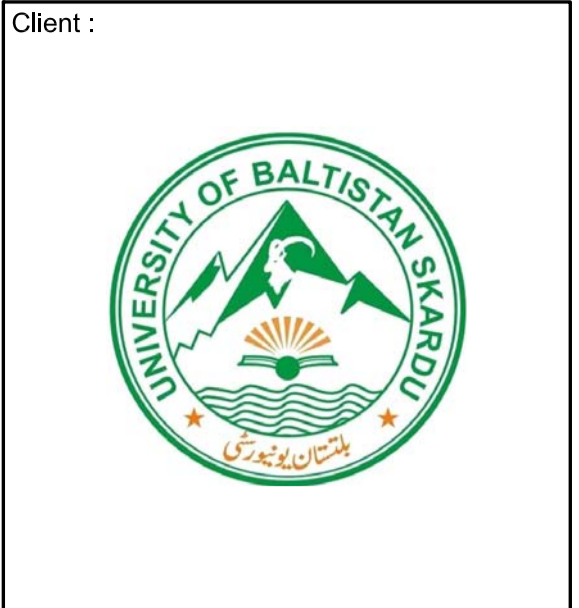
(E) TYPICAL INTERSECTION DETAIL FOR WATER TANK WALL U.N.O
SCALE N.T.S



(F) TYPICAL SERVICE ENTRY DETAIL IN FOUNDATION / WALL / SLAB
SCALE N.T.S

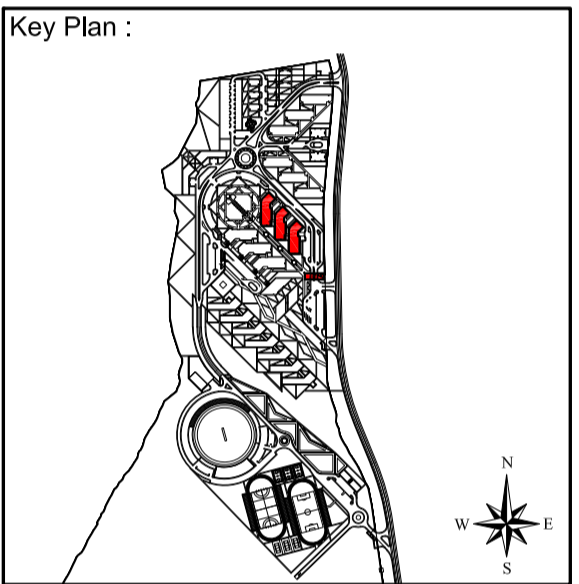


(G) TYPICAL CONTRACTION JOINT PLAN
SCALE N.T.S



Client :
UNIVERSITY OF BALTISTAN SKARDU
Consultant :
EA Consulting Pvt Ltd
Head Office: AL-9, 15th Lane, Khayaban-e-Hilal, Phase 7, Defence Housing Authority, Karachi, 75500 - Pakistan
Phone No. : 111-111-584, Fax No. : 584-1825
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Project :
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North:
Globe direction of Baltistan Pakistan is 353.700000 Degree from North direction.

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Issued For	Tender

STRUCTURE

Status: **TENDER**

Building Name:
PACKAGE-02

Drawing Title :
STANDARD DETAILS (SHEET 4 OF 5)

Designed :	Checked :	Approved :
SA	M.L	M.S
Drawn :	Date :	Scale / Sheet :
MH	JUL, 2019	AS SHOWN
Project Code :	01012	Rev. : 0

Drawing No. :
EA-01012-UOBS-GEN-S2-005

