MAYOR:
SYLVESTER TURNER

CITY COUNCIL MEMBERS:
DISTRICT A - AMY PECK
DISTRICT B - JERRY DAVIS
DISTRICT C - ABBIE KAMIN
DISTRICT D - CAROLYN EVANS SHABAZZ
DISTRICT E - DAVE MARTIN
DISTRICT F - TIFFANY THOMAS
DISTRICT G - GREG TRAVIS
DISTRICT H - KARLA CISNEROS

CONTROLLER:
CHRIS BROWN

CITY COUNCIL MEMBERS:
DISTRICT I - ROBERT GALLEGOS
DISTRICT J - EDWARD POLLARD
DISTRICT K - MARTHA CASTER-TATUM
AT LARGE POSITION 1 - MIKE KNOX
AT LARGE POSITION 2 - DAVID ROBINSON
AT LARGE POSITION 3- MICHAEL KUBOSH
AT LARGE POSITION 4 - LATITIA PLUMMER
AT LARGE POSITION 5 - SALLIE ALCORN

HOUSTON AIRPORT SYSTEM

PLANS FOR CONSTRUCTION
OF

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

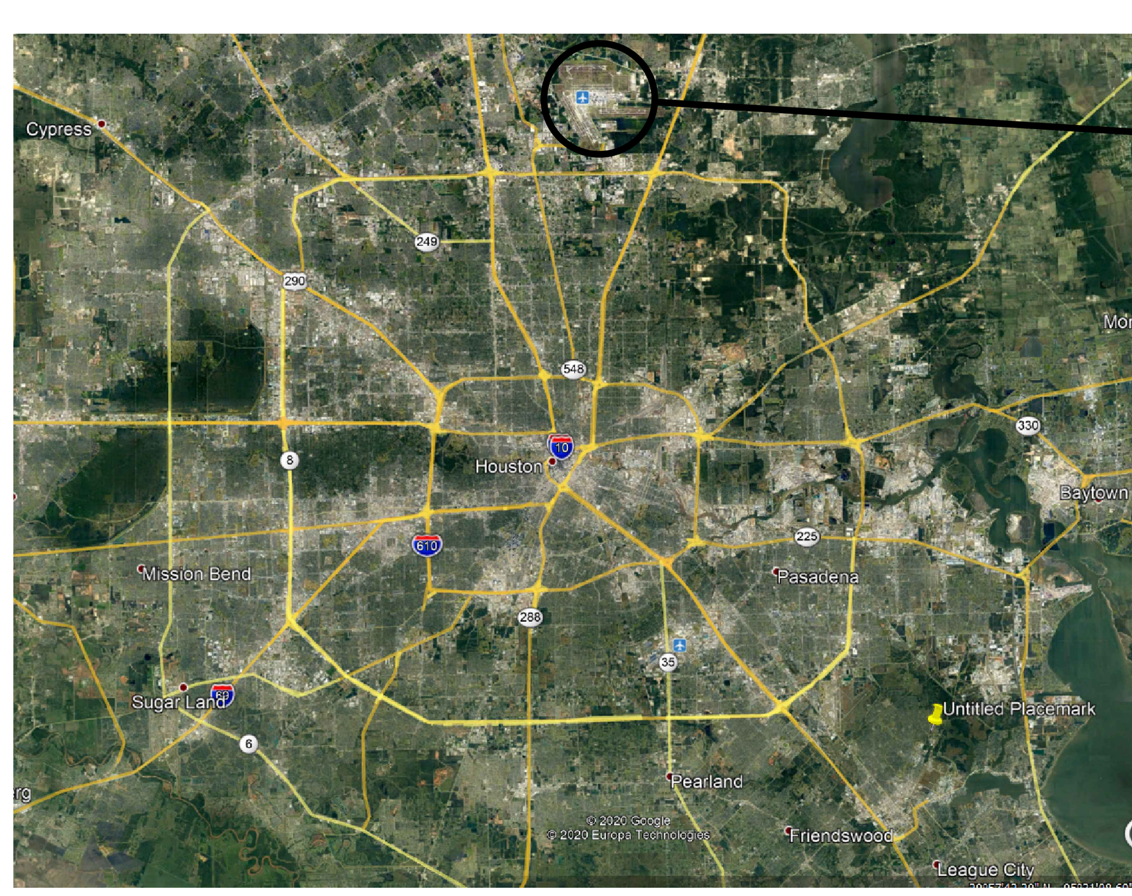
AT

GEORGE BUSH INTERCONTINENTAL AIRPORT / HOUSTON

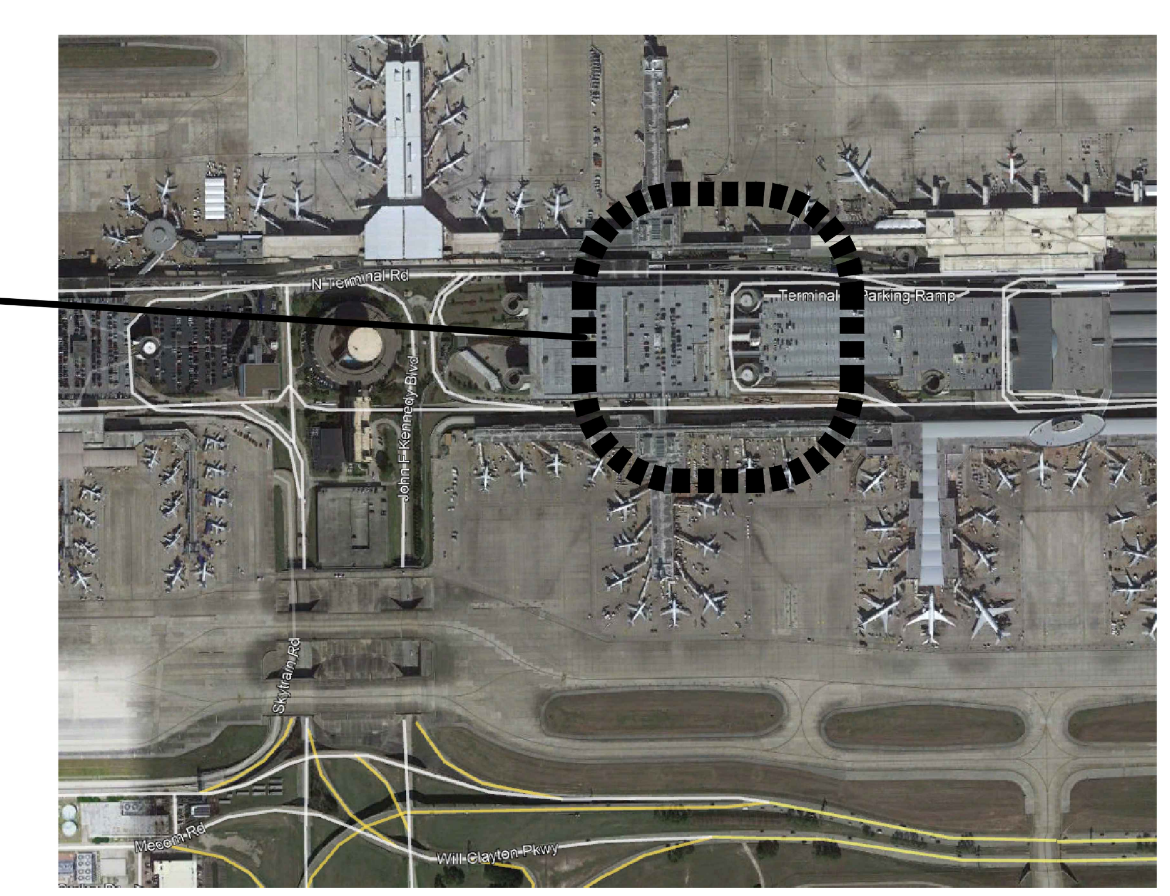
ISSUED FOR PERMIT 09/10/2020

HAS PROJECT NO: PN235
LOA 925A-002
MWA 19-21

HOUSTON AIRPORT SYSTEM
DIRECTOR - MARIO C DIAZ



AREA MAP



VICINITY MAP

ARCHITECT:
MWA ARCHITECTS
11767 KATY FREEWAY, STE. 430
HOUSTON, TX 77079
713.482.2329

STRUCTURAL ENGINEER:
JONES ENGINEERS, L.P.
9820 WHITHORN DR.
HOUSTON, TX 77095
713.222.7766

TRAFFIC ENGINEER:
SP ENGINEERS, INC.
4418 BLUEBONNET DR SUITE 406.
STAFFORD, TX 77477
832.8672522

HOUSTON AIRPORTS
TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032
IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C
C.I.P. No. | A.I.P. No.
C.O.H. No. | D.O.A No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 19-21
PROJECT STATUS: CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
1	ISSUED FOR 90% REVIEW 04/17/2020		J TOHILL
2	ISSUED FOR 95% REVIEW 07/31/2020		J TOHILL
3	ISSUED FOR PERMIT 09/10/2020		J TOHILL

DESIGNER: J TOHILL
DRAWN BY: J TOHILL
CHECKED BY: TBD
ISSUE DATE: 07/31/2020
APPROVED BY:
APPROVAL DATE:

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
AFR
ISSUED FOR PERMIT

9-10-2020

SHEET SIZE: 22"x34" ANSI-D
SHEET NAME: COVERSHEET
SHEET No. G100
SCALE:

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OLD DOA No.:
DOA DWG FILE:

01 ABBREVIATIONS
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ACRONYM / ABBREVIATION	FULL TECHNICAL TERM
A4A	Airlines for America Air conditioning A/C American Architectural Manufacturers
AAMA	Association American Association of State Highway and AASHTO Transportation Officials
ABA	Architectural Barriers Act
AC	Advisory Circular
ACI	American Concrete Institute
ACM	Asbestos Containing Material
ACR	Air Conditioning and Refrigeration
ACT	Acoustical Ceiling Tile
ADA	Americans with Disabilities Act
ADAAG	Accessibility Guidelines for Buildings and Facilities
ADE	Airport Development and Engineering
ADG	Airplane Design Group
ADWR	AIRLINE DRINKING WATER RULE
AEC	ARCHITECTURAL, ENGINEERING AND CONSTRUCTION
AEP	ANNUAL EXCEEDANCE PROBABILITY
AFBMA	ANTI-FRICTION BEARING MANUFACTURERS ASSOCIATION
AFFF	AQUEOUS FILM FORMING FOAM
AGL	ABOVE GROUND LEVEL
AHJ	AUTHORITY HAVING JURISDICTION
AHRI	AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE
AHU	AIR HANDLING UNIT
AIP	AIRPORT IMPROVEMENT PROGRAM
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALP	AIRPORT LAYOUT PLAN
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AOA	AIRPORT OPERATIONS AREA
API	AMERICAN PETROLEUM INSTITUTE
APWC	AIRCRAFT POTABLE WATER CABINET
ARCP	AIRPORT COOPERATIVE RESEARCH PROGRAMS
ARFF	AIRCRAFT RESCUE AND FIREFIGHTING
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
ARP	AEROSPACE RECOMMENDED PRACTICE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASCII	AMERICAN STANDARD CODE FOR INFORMATION INTERCHANGE
ASD	ALLOWABLE STRESS DESIGN
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS
ASJ	ALL-SERVICE JACKET
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATA	AIR TRANSPORT ASSOCIATION OF AMERICA
ATC	AIR TRAFFIC CONTROL
ATR	AUTOMATIC TAG READER
ATS	AUTOMATIC TRANSFER SWITCHES
AWG	AMERICAN WIRE GAUGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
BAS	BUILDING AUTOMATED SYSTEM
BHMA	BUILDERS HARDWARE MANUFACTURERS ASSOCIATION
BHS	BAGGAGE HANDLING SYSTEM
BHSC	BAGGAGE HANDLING SYSTEM CONTRACTOR
BIDS	BAGGAGE INFORMATION DISPLAY SYSTEMS
BIM	BUILDING INFORMATION MODELING
BISCI	BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL
BMS	BUILDING MANAGEMENT SYSTEM
BOM	BOMMER INDUSTRIES, INC.
BOMA	BUILDING OWNERS AND MANAGERS ASSOCIATION
BRS	BAGGAGE RECONCILIATION SYSTEM
BSD	BAGGAGE STATUS DISPLAYS
BSG	BUILDING STANDARDS GROUP
BSM	BAGGAGE SOURCE MESSAGE
BT	BOLD TYPE
BSG	BACKLIGHT, UPLIGHT, AND GLARE
BTU	BRITISH THERMAL UNIT
BUTT	THREE-KNUCKLE CONCEALED ANTIFRICTION-BEARING, FULL-MORTISE HINGES
CAD	COMPUTER-AIDED DESIGN
CBIS	CHECKED BAGGAGE INSPECTION SYSTEM
CBR	CALIFORNIA BEARING RATIO
CBRA	CHECKED BAGGAGE RECONCILIATION AREA
CCT	CLOSED CIRCUIT TELEVISIONS
CCU	CLUSTER CONTROL UNIT
CDA	CRITICAL DESIGN AIRCRAFT
cfm	CUBIC FOOT/FEET PER MINUTE
CHW	CHILLED WATER
CLOMR	CONDITIONAL LETTER OF MAP REVISION
CMA	CHANGE MANAGEMENT APPROVAL
COH	CITY OF HOUSTON
COR	CORBIN RUSSWIN ARCHITECTURAL HARDWARE
CPE	CENTERPOINT ENERGY
CPS	CATHODIC PROTECTION SYSTEM
CRC	CHANGE REVIEW COMMITTEE
CRF	CONDENSATION RESISTANCE FACTOR
CSI	CONSTRUCTION SPECIFICATION INSTITUTE
CSPP	CONSTRUCTION SAFETY PHASING PLAN
CTA	CENTRAL TERMINAL AREA
CTB	CEMENT TREATED BASE
CWP	COLD WORKING PRESSURE
CUP	CENTRAL UTILITY PLANT
DAS	DISTRIBUTED ANTENNA SYSTEM
D	DECIBEL
dBA	A-SCALE DECIBELS
DB	DRY-BULB
DMS	DATABASE MANAGEMENT SYSTEM
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROL
DFT	DISCRETE FOURIER TRANSFORM
DGP	DATA GATHERING PANEL
DHSCBP	DEPARTMENT OF HOMELAND SECURITY CUSTOMS AND BORDER PROTECTION
DIP	DUCTILE IRON PIPE
DLC	DESIGNLIGHTS CONSORTIUM
DOAS	DEDICATED OUTDOOR AIR SYSTEM
DOJ	DEPARTMENT OF JUSTICE
DOR	THE DORMA GROUP NORTH AMERICA
DPWE	DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
DSHS	TEXAS DEPARTMENT OF STATE HEALTH SERVICES
DX	DIRECT EXPANSION
EAD	ENVIRONMENTAL AFFAIRS DEPARTMENT
EBS	EARLY BAGGAGE STORAGE
ECC	ENVIRONMENTAL COMPLIANCE CHECKLIST
EDS	EXPLOSIVE DETECTION SYSTEM
EFD	ELLINGTON AIRPORT
EFSO	EMERGENCY FUEL SHUTOFF
EMT	ELECTRICAL METALLIC TUBING
EOR	ENGINEER-OF-RECORD
EP	ETHYLENE PROPYLENE
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EPIC	ELECTRONIC PROJECT INFORMATION COOPERATION
EPR	ETHYLENE PROPYLENE RUBBER
EPS	ELECTRICAL POWER STATION
ESP	EXPANDED SERVICES PANEL
ESS	ELECTRONIC SAFETY AND SECURITY
EUL	ENABLING UTILITIES LANDSIDE
EWC	ELECTRIC WATER COOLER
FAA	FEDERAL AVIATION ADMINISTRATION
FAR	FEDERAL AVIATION REGULATIONS
FAS	FIRE ALARM SYSTEM(S)
FCO	FLIGHT CLOSE-OUT
FCU	FAN-COIL UNIT
FDA	FOOD AND DRUG ADMINISTRATION
FDC	FIRE DEPARTMENT CONNECTION
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FIDS	FLIGHT INFORMATION DISPLAY SYSTEM
FIS	FEDERAL INSPECTION SERVICES
FM	FACTORY MUTUAL
FOC	FIBER OPTIC CABLE
FM	FEET PER MINUTE
FPY	FIRST PASS YIELD
ft/sec	FOOT/FEET PER SECOND
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GIDS	GATE INFORMATION DISPLAY SYSTEM
GIS	GEOGRAPHIC INFORMATION SYSTEM
GPM	GALLONS PER MINUTE
GPU	GROUND POWER UNITS
GWB	GYPSUM WALL BOARD
H:V	HORIZONTAL:VERTICAL
HAG	HAGER COMPANIES
HAS	HOUSTON AIRPORT SYSTEM
HCFCD	HARRIS COUNTY FLOOD CONTROL DISTRICT
HEC-HMS	HYDROLOGIC MODELING SYSTEM
HGL	HYDRAULIC GRADE LINE
HHW	HEATING HOT WATER
HID	HIGH INTENSITY DISCHARGE
HMAC	HOT MIX ASPHALT CONCRETE
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HOU	WILLIAM P. HOBBY AIRPORT
HPS	HIGH PRESSURE SODIUM
HSD	HIGH-SPEED DIVERTER
HSLA	HIGH STRENGTH LOW ALLOW
HTHW	HIGH TEMPERATURE HOT WATER
H:V	HORIZONTAL TO VERTICAL (RATIO)
HVAC	HEATING, VENTILATION, AND AIR-CONDITIONING
Hz	HERTZ
I/O	INPUT/OUTPUT
IAH	GEORGE BUSH INTERCONTINENTAL AIRPORT
IAQ	INDOOR AIR QUALITY
IATA	INTERNATIONAL AIR TRANSPORT ASSOCIATION
IBC	INTERNATIONAL BUILDING CODES
ICEA	INSULATED CABLE ENGINEERS ASSOCIATION
ID	INNER DIAMETER
IDF	INTERMEDIATE DISTRIBUTION FRAME
IIDM	INFRASTRUCTURE DESIGN MANUAL
IEC	INTERNATIONAL ELECTROTECHNICAL COMMISSION
IECC	INTERNATIONAL ENERGY CONSERVATION CODE
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IESNA	ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA
IFC	INTERNATIONAL FIRE CODE
IGBT	INSULATED-GATE BIPOLAR TRANSISTOR
IPC	INTERNATIONAL PLUMBING CODE
ISAT	(TSA) INTEGRATED SITE ACCEPTANCE TESTING
ISD	INLINE SCREENING DEVICE
ISO	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
IT	INFORMATION TECHNOLOGY
ITRP	INTERNATIONAL TERMINAL REDEVELOPMENT PROGRAM
IVE	IVES HARDWARE; INGERSOLL-RAND COMPANY
JIC	JOINT INDUSTRIAL COUNCIL
KPI	KEY PERFORMANCE INDICATORS
kV	KILOVOLT
kVA	KILOVOLT-AMP
kW	KILOWATT
kH	KILOWATT-HOUR
LAN	LOCAL AREA NETWORK
LCD	LIQUID CRYSTAL DISPLAY
LID	LIGHT-EMITTING DIODE
LEED	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
LOMR	LETTER OF MAP REVISION
LOTO	LOCK-OUT-TAG-OUT
LPI	LIGHTING PROTECTION INSTITUTE
LR	LIGHT REFLECTANCE (VALUE)
LRFD	LOAD AND RESISTANCE FACTOR DESIGN
	MODEL
M3	MAP MANAGEMENT
MCK	MCKINNEY PRODUCTS COMPANY
MCP	MOTOR CONTROL PANELS
MDF	MAIN DISTRIBUTION FRAME
MDS	MOBILE DISPLAY SYSTEM
MEP	MECHANICAL, ELECTRICAL, AND PLUMBING
MIS	MANAGEMENT INFORMATION SYSTEM
MLIT	MICKEY LEYLAND INTERNATIONAL TERMINAL
mph	MILE PER HOUR
MRL	MACHINE ROOM-LESS
MSS	MANUFACTURER'S STANDARDIZATION SOCIETY
MTM	MAIN-TIE-MAIN
M-T-T-M	MAIN-TIE-TIE-MAIN
NACE	NATIONAL ASSOCIATION OF CORROSION ENGINEERS
NAVAID	NAVIGATIONAL AID
NBPT	NO BREAK POWER TRANSFER
NC	NOISE CRITERIA
NCS	NATIONAL CAD STANDARDS
NDL	NO DOLLAR LIMIT
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NETA	INTERNATIONAL ELECTRICAL TESTING ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NGS	NATIONAL GEODETIC SURVEY
NIC	NOISE ISOLATION CLASS
NOI	NOTICE OF INTENT
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
NPS	NOMINAL PIPE SIZE
NSF	NATIONAL SANITATION FOUNDATION
O&M	OPERATION AND MAINTENANCE
O.D.	OUTSIDE DIAMETER
OCCS	OMNICLASS CONSTRUCTION CLASSIFICATION SYSTEM
OFA	OBJECT FREE AREA
OITC	OUTDOOR-INDOOR TRANSMISSION CLASS
ORAT	OPERATIONAL READINESS AND AIRPORT TRANSFER
OS&Y	OUTSIDE STEM AND YOKE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OSR	ON-SCREEN RESOLUTION
PA	PUBLIC ADDRESS
PACS	PRIMARY AIRPORT CONTROL STATION
PBB	PASSENGER BOARDING BRIDGE
PC	PRE-CONDITIONED
PCA	PRE-CONDITIONED AIR
PCC	PORTLAND CEMENT CONCRETE
PCPM	POLICY, CRITERIA AND PROCEDURE MANUAL
PDC	PLANNING, DESIGN, AND CONSTRUCTION
PE	POLYETHYLENE
PF	POWER FACTOR
PFC	PASSENGER FACILITY CHARGES
PGDS	PLANNING GUIDELINES AND DESIGN STANDARDS
PICV	PRESSURE INDEPENDENT CONTROL VALVE
PLB	PASSENGER LOADING BRIDGE
PLC	PROGRAMMABLE LOGIC CONTROLLER
POU	POINT-OF-USE
PPE	PERSONNEL PROTECTIVE EQUIPMENT
Psf	POUND(S) PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psig	POUNDS PER SQUARE INCH GAUGE
PTFE	POLYTETRAFLUOROETHYLENE
PTM	PREFORMED THERMOPLASTIC MARKINGS
PVC	POLYVINYL CHLORIDE
PWC	POTABLE WATER CABINET
PWE	PUBLIC WORKS AND ENGINEERING
PWL	PERCENT WITHIN LIMITS
PWM	PULSE WIDTH MODULATED
PWS	PUBLIC WATER SYSTEM
RAS	REGISTERED ACCESSIBILITY SPECIALIST
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RFID	RADIO FREQUENCY IDENTIFICATION
RFV	REQUEST FOR VARIANCE
RGS	RIGID GALVANIZED STEEL
RH	RELATIVE HUMIDITY
RIX	RIXSON SPECIALTY DOOR CONTROLS
RSM	ROOT MEAN SQUARE
ROW	RIGHT-OF-WAY
RPM	ROTATIONS PER MINUTE
RQE	REQUEST TO EXIT
RSA	RUNWAY SAFETY AREA
RTR	REMOTE TRANSMITTER RECEIVER
SACS	SECONDARY AIRPORT CONTROL STATION
SAE	SOCIETY OF AUTOMOTIVE ENGINEERS
SAR	SARGENT MANUFACTURING COMPANY
SARA	SERVICE ANIMAL RELIEF AREA
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SCH	SCHLAGE COMMERCIAL LOCK DIVISION
SCR	SILICON CONTROLLED RECTIFIER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SEL	SCHWEITZER ENGINEERING LABORATORIES
SIDA	SECURITY IDENTIFICATION DISPLAY AREA
SLA	SERVICE LEVEL AGREEMENT
SMACNA	SHEET METAL & AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
SOP	STANDARD OPERATING PROCEDURE
SPCC	SPILL PREVENTION, CONTROL AND COUNTERMEASURE
SPCD	SAFETY PLAN COMPLIANCE DOCUMENT
SPD	SURGE PROTECTION DEVICES
SPDT	SINGLE-POLE, DOUBLE-THROW
SPRI	SINGLE PLY ROOFING INDUSTRY
SQL	STRUCTURED QUERY LANGUAGE
SSS	SANITARY SEWER SYSTEMS
SSTP	(TSA) SITE-SPECIFIC TEST PLAN
STA	STANLEY COMMERCIAL HARDWARE
STANDARDS	DESIGN STANDARDS
STC	SOUND TRANSMISSION CONTROL
SU	SINGLE-UNIT
SUE	SUBSURFACE UTILITY ENGINEERING
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
TCEQ	TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
TDLR	TEXAS DEPARTMENT OF LICENSING AND REGULATION
THD	TOTAL HARMONIC DISTORTION
THW	THERMOPLASTIC, HEAT AND WATER (RESISTANT WIRE)
TPDES	TEXAS POLLUTANT DISCHARGE ELIMINATION SYSTEM
TPO	THERMOPLASTIC POLYOLEFIN
TRB	TRANSPORTATION AND RESEARCH BOARD
TRR	(TSA) TEST READINESS REVIEW
TSA	TRANSPORTATION SECURITY ADMINISTRATION
TxDOT	TEXAS DEPARTMENT OF TRANSPORTATION
UF	UNDERGROUND FEEDER
UL	UNDERWRITERS' LABORATORIES, INC.
Um	MICROMETER
UMC	UNIFORM MECHANICAL CODE
UNO	UNLESS NOTED OTHERWISE
UPC	UNIFORM PLUMBING CODE
UPS	UNINTERRUPTIBLE POWER SUPPLIES
USGBC	UNITED STATES GREEN BUILDING COUNCIL
UST	UNDERGROUND STORAGE TANKS
VAC	VOLTS ALTERNATING CURRENT
VAV	VARIABLE AIR VOLUME
VC	VINYL COMPOSITION
VDC	VOLTS OF DIRECT CURRENT
VGGS	VISUAL DOCKING GUIDANCE SYSTEM
VFD	VARIABLE FREQUENCY DRIVES
VOC	VOLATILE ORGANIC COMPOUND
VRLA	VALVE-REGULATED LEAD-ACID
VSR	VEHICLE SERVICE ROAD
WAN	WORK AREA NOTIFICATION
WB	WIDE BODY
WG	WATER GAUGE
XML	EXTENSIBLE MARKUP LANGUAGE
YAL	YALE COMMERCIAL LOCKS AND HARDWARE

10 INDEX

Sheet List Table

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 19-21
PROJECT STATUS: CONSTRUCTION DOCUMENTS

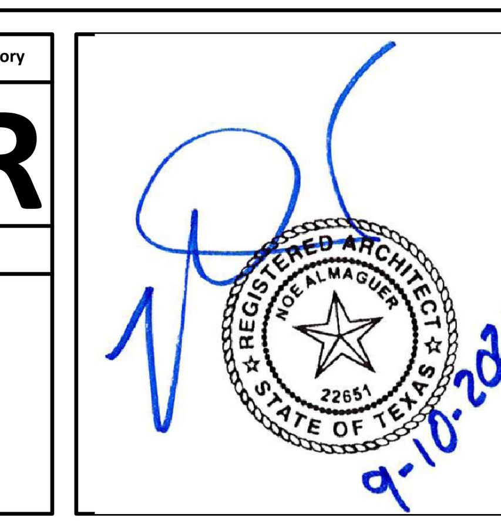
REVISIONS

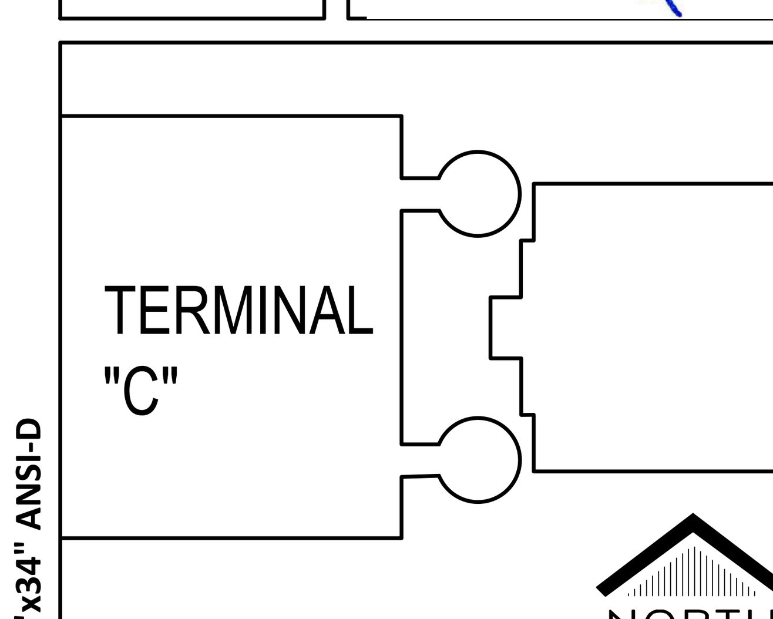
No.	DESCRIPTION	DATE	BY
1	ISSUED FOR 90% REVIEW 04/17/2020		J TOHILL
2	ISSUED FOR 95% REVIEW 07/31/2020		J TOHILL
3	ISSUED FOR PERMIT 09/10/2020		J TOHILL

DESIGNER:	J TOHILL
DRAWN BY:	J TOHILL
CHECKED BY:	TBD
ISSUE DATE:	09/10/2020
APPROVED BY:	
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
AFR
ISSUED FOR PERMIT





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SHEET No.: G110
SCALE: NTS

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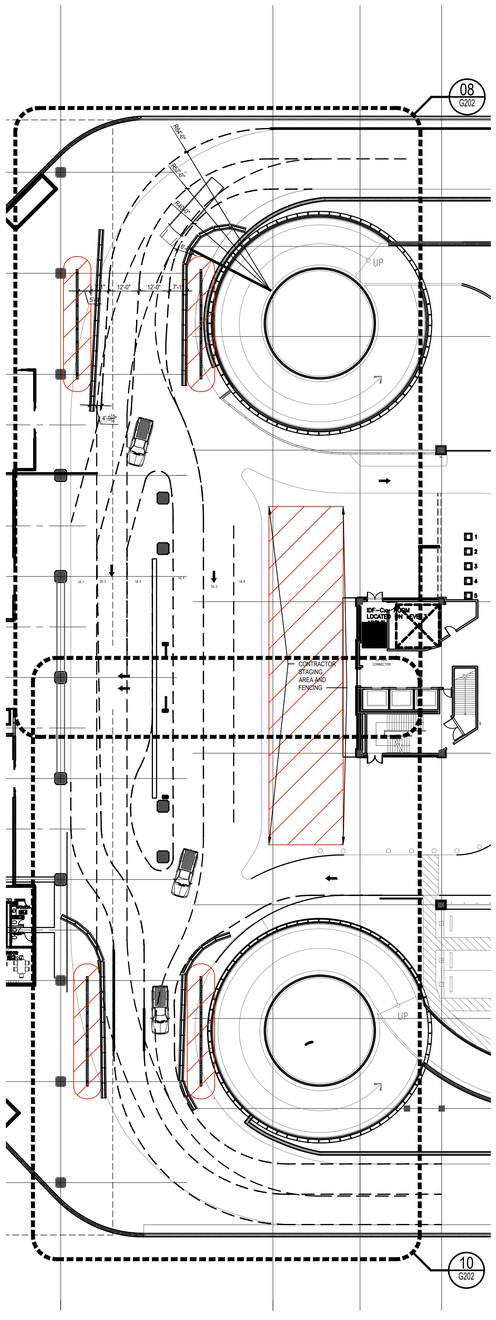

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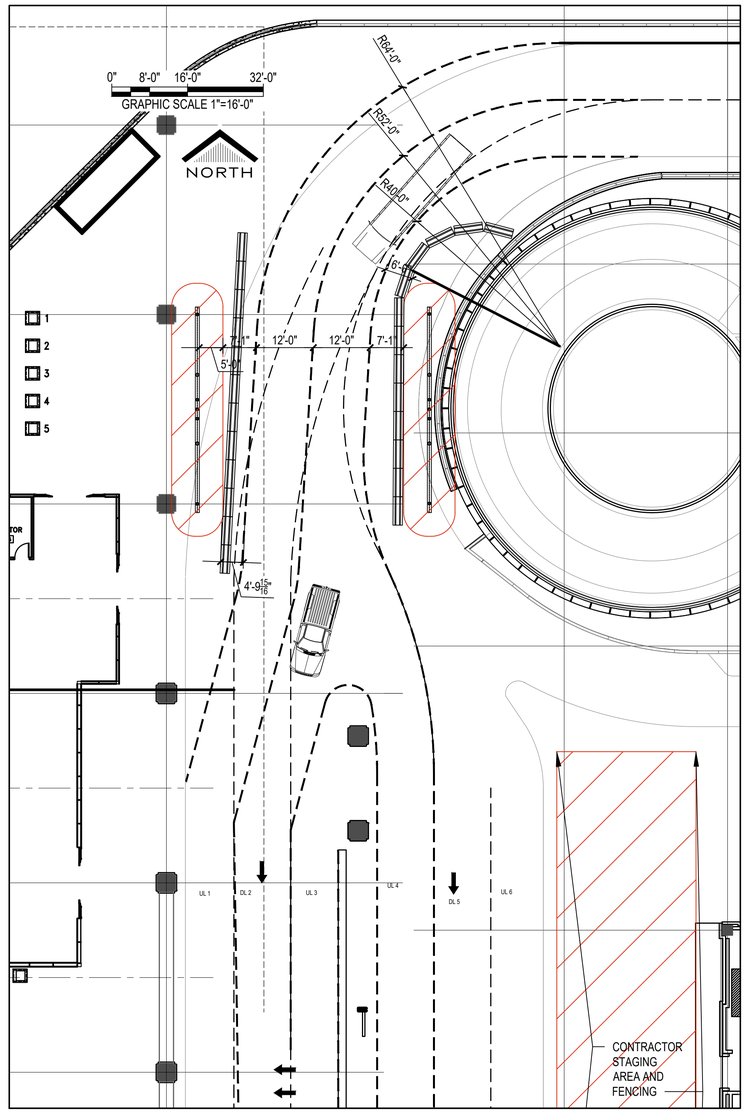
1" = 30'-0"



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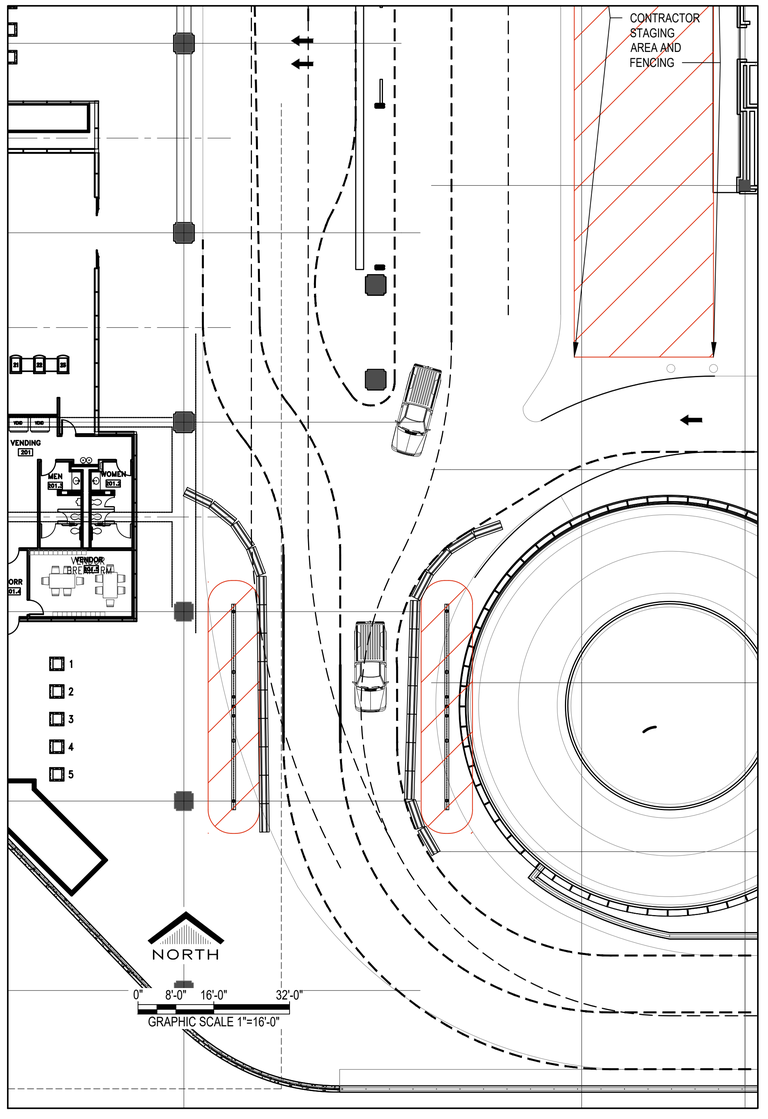
1/16" = 1'-0"



10 LEVEL 2 SOUTHEAST RAMP PHASE 2
1/16" = 1'-0"

02 NOTES
NTS

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.:	19-21
PROJECT STATUS:	CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
1	ISSUED FOR 95% REVIEW	07/31/2020	JTOHILL
2	ISSUED FOR PERMIT	09/10/2020	JTOHILL
3	ISSUED FOR PERMIT	09/10/2020	JTOHILL

DESIGNER:	J TOHILL
DRAWN BY:	J TOHILL
CHECKED BY:	TBD
ISSUE DATE:	09/10/2020
APPROVED BY:	
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

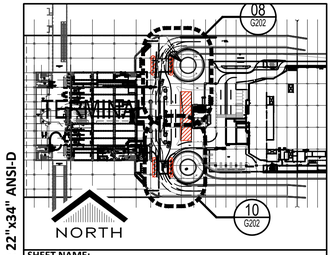
Review/ Approval Category

AFR

ISSUED FOR PERMIT

REGISTERED ARCHITECT
JOSE ALMADOR
22651
STATE OF TEXAS

9-10-2020



SHEET NAME:
LEVEL 2 CONSTRUCTION LAYDOWN AREA

SHEET No.	SCALE:
G202	AS NOTED

SHEET SIZE: 22"x34" ANSI-D

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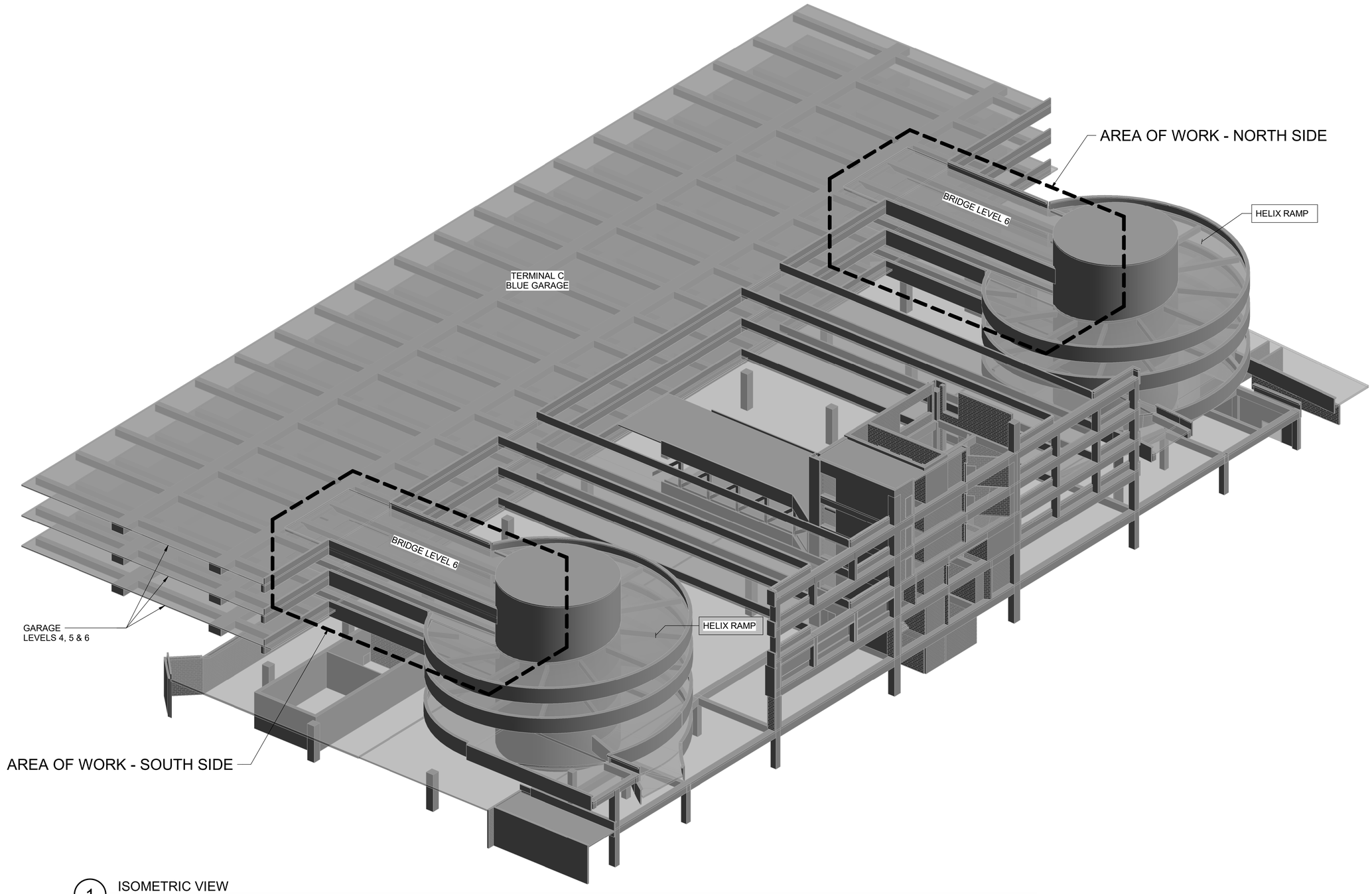

1 ISOMETRIC VIEW

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PLOT DATE:

DOA DWG FILE:

OLD DOA No. :

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

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11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 20-03

PROJECT STATUS: CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
1	ISSUED FOR 60% REVIEW	03/06/2020	
2	ISSUED FOR 90% REVIEW	04/17/2020	
3	ISSUED FOR 95% REVIEW	07/07/2020	
4	ISSUED FOR 100% REVIEW	07/31/2020	
5	ISSUED FOR PERMIT	09/10/2020	HRSE

DESIGNER:	ER
DRAWN BY:	RR
CHECKED BY:	ER
ISSUE DATE:	09/10/2020
APPROVED BY:	ER
APPROVAL DATE:	

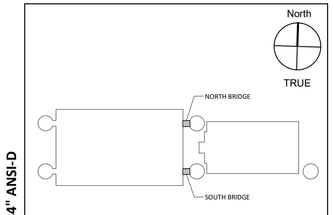
DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category

IFP
Issued For Permit

Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755

STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
09/10/2020



SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: ISOMETRIC VIEW

SHEET No. SF001 **SCALE:**

GENERAL STRUCTURAL NOTES

PART I - DESIGN CRITERIA

A. GENERAL BUILDING CODE

1. THE REPAIR TO EXISTING STRUCTURE ARE BASED ON THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE 2012, WITH CITY OF HOUSTON AMENDMENTS.

2. BUILDING OCCUPANCY CATEGORY: II (PER IBC TABLE 1604A.5).

B. DEAD LOADS

1. SELF WEIGHT OF STRUCTURE AND 20 PSF SUPERIMPOSED DEAD LOAD.

C. LIVE LOADS

1. DESIGN LIVE LOAD USED FOR ANALYSIS: DESIGN LIVE LOADS ARE BASED ON THE MORE RESTRICTIVE OF THE UNIFORM LOAD LISTED BELOW OR THE CONCENTRATED LOAD LISTED ACTING OVER AN AREA 20 SQUARE INCHES.

   a. 50 PSF OR 2,000 LBS

D. WIND LOADS

1. WIND PRESSURES (FOR DESIGN OF SHORING SYSTEMS) SHALL BE BASED ON THE PROVISIONS OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-10 AND THE FOLLOWING CRITERIA.

   a. ULTIMATE DESIGN WIND SPEED (VULT): 139 MPH (3-SECOND GUST)
   b. BUILDING RISK CATEGORY: II
   c. WIND EXPOSURE CATEGORY: B

PART II - REINFORCED CONCRETE

A. CLASSES OF CONCRETE

1. ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS AS NOTED BELOW UNLESS NOTED OTHERWISE ON THE DRAWINGS:

LOCATION	28 DAYS COMP STRENGTH	CONC TYPE
CONCRETE TOPPING	4,000 PSI	NWT
SLAB, CURBS OR WALLS		

NWT = NORMAL WEIGHT CONCRETE

B. HORIZONTAL CONSTRUCTION JOINTS IN CONCRETE POURS

1. THERE SHALL BE NO HORIZONTAL CONSTRUCTION JOINTS IN ANY CONCRETE POURS UNLESS SHOWN ON THE DRAWINGS. THE ARCHITECT/ENGINEER SHALL APPROVE ALL DEVIATIONS OR ADDITIONAL JOINTS IN WRITING.

C. REINFORCING STEEL

1. SUPPLEMENTAL REINFORCING STEEL SHALL BE ASTM A 615 GRADE 60 UNLESS NOTED OTHERWISE ON THE DRAWINGS OR IN THESE NOTES.

D. REINFORCING STEEL COVERAGE

1. COVER IN STRUCTURAL MEMBERS NOT SPECIFIED IN THE DETAILS SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. THE REINFORCING STEEL DETAILER SHALL ADJUST REINFORCING STEEL CAGE SIZES AT INTERSECTING STRUCTURAL MEMBERS AS REQUIRED TO ALLOW CLEARANCE FOR INTERSECTING REINFORCING BAR LAYERS WITH MINIMUM SPECIFIED COVER.

PART III - REPAIRS

A. CONCRETE CRACK AND SPALLING REPAIR NOTES:

1. SUBSTRATE SHALL BE CLEAN, SOUND, AND LATAINCE-FREE PRIOR TO ANY REPAIRS.
2. REFER TO MANUFACTURER SPECIFICATIONS FOR SURFACE PREPARATION REQUIREMENTS.
3. HAIRLINE AND NARROW CRACKS (CRACK WIDTH < 1/100) SHALL BE SEALED WITH AN APPROVED PENETRATING SEALER OR COATED PIGMENTED SEALER. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. MEDIUM AND WIDE CRACKS (CRACK WIDTH >1/100) SHALL BE INJECTED FULL DEPTH WITH AN APPROVED EPOXY RESIN. USE SIKADUR 35, HI-MOD LV OR OTHER APPROVED PRODUCT, AS SPECIFIED.
5. FOR SPALLED CONCRETE REPAIRS, PRIME EXPOSED REBAR WITH SIKA ARMATEC 110 EPOCEM OR EQUIVALENT AND PATCH WITH APPROPRIATE CONCRETE REPAIR MATERIALS AS SPECIFIED IN REPAIR DETAILS.
8. COORDINATE WITH SUPPLIER FOR INSTALLATION METHODS AND APPLICABILITY OF PRODUCTS NOTED HERE.
9. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
10. CONTRACTOR TO SUBMIT ANNOTATED ELEVATIONS SHOWING CRACK LOCATIONS AND TYPE OF CRACK REPAIR MATERIAL APPLIED TO EACH CRACK. ENGINEER TO APPROVE IN SUBMITTAL AND IN FIELD PRIOR TO COMMENCEMENT OF WORK.

PART IV - STRUCTURAL OBSERVATION

A. A PRE-CONSTRUCTION MEETING INCLUDING THE ENGINEER RESPONSIBLE FOR THE STRUCTURAL OBSERVATION, THE STRUCTURAL OBSERVER, THE CONTRACTOR, AFFECTED SUBCONTRACTORS, AND DEPUTY INSPECTORS SHALL BE HELD TO REVIEW THE APPROVED STRUCTURAL PLANS AND AGREE UPON INSPECTION SCOPE AND SCHEDULE. THE OWNER OR OWNER'S REPRESENTATIVE SHALL COORDINATE AND CALL THE MEETING, AND THE STRUCTURAL OBSERVER SHALL PRESIDE OVER THE MEETING.

B. THE PURPOSE OF THE PRECONSTRUCTION MEETING SHALL BE TO IDENTIFY THE STRUCTURAL ELEMENTS AND CONNECTIONS THAT NEED REPAIR AND TO REVIEW SHORING REQUIREMENTS. A RECORD OF THE MEETING SHALL BE INCLUDED IN THE FIRST OBSERVATION REPORT SUBMITTED TO THE SUPERINTENDENT OF BUILDING.

C. OBSERVED DEFICIENCIES SHALL BE REPORTED IN WRITING TO THE OWNER'S REPRESENTATIVE, REGISTERED DEPUTY INSPECTOR, CONTRACTOR AND THE SUPERINTENDENT OF BUILDING.

D. UPON THE FORM PRESCRIBED BY THE SUPERINTENDENT OF BUILDING, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE SUPERINTENDENT OF BUILDING A WRITTEN STATEMENT AT EACH SIGNIFICANT CONSTRUCTION STAGE STATING THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFYING ANY REPORTED DEFICIENCIES, WHICH, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

E. A FINAL REPORT BY THE STRUCTURAL OBSERVER, WHICH STATES THAT ALL OBSERVED DEFICIENCIES HAVE BEEN RESOLVED, IS REQUIRED BEFORE ACCEPTANCE OF THE WORK BY THE SUPERINTENDENT OF BUILDING.

F. AT THE CONCLUSION OF THE WORK INCLUDED IN THE PERMIT, THE STRUCTURAL OBSERVER SHALL SUBMIT TO THE SUPERINTENDENT OF BUILDING A WRITTEN STATEMENT THAT THE SITE VISITS HAVE BEEN MADE AND SHALL IDENTIFY ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

G. THE STRUCTURAL OBSERVER SHALL PERFORM STRUCTURAL OBSERVATION IN ACCORDANCE WITH THE STRUCTURAL OBSERVATION REPORT FORM AND THE APPROVED PLANS. UPON COMPLETION OF STRUCTURAL OBSERVATION, THE STRUCTURAL OBSERVER OF RECORD SHALL COMPLETE THE OBSERVATION FORM.

H. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE STRUCTURAL REPAIRS, FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS, AT SIGNIFICANT CONSTRUCTION STAGES AND AT COMPLETION OF THE STRUCTURAL REPAIRS.

I. STRUCTURAL OBSERVATION SHALL BE PERFORMED BY THE ENGINEER RESPONSIBLE FOR THE STRUCTURAL DESIGN, OR A LICENSED ENGINEER OR ARCHITECT DESIGNATED BY THE SAID ENGINEER.

J. STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR THE INSPECTION REQUIRED BY THE BUILDING CODE.

PART V - SPECIAL INSPECTIONS

A. THE OWNER'S TESTING LABORATORY SHALL PROVIDE SPECIAL INSPECTION SERVICES IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE FOR THE FOLLOWING ITEMS.

1. CONCRETE CONSTRUCTION:
   a. EPOXY INJECTION FOR CRACK REPAIRS
   b. CONCRETE REPAIRS

PART VI - SUBMITTALS

A. SUBMITTAL LIST AND SCHEDULE

1. THE GENERAL CONTRACTOR SHALL PREPARE A DETAILED LIST AND SCHEDULE OF ALL SUBMITTAL ITEMS TO BE SENT TO THE STRUCTURAL ENGINEER PRIOR TO THE START OF CONSTRUCTION. THIS LIST SHALL BE UPDATED AND REVISED AND KEPT CURRENT AS THE JOB PROGRESSES. THE SUBMITTAL LIST SHALL BE ORGANIZED AS SHOWN BELOW:

   a. SHOP DRAWINGS
   b. DESIGN CALCULATIONS
   c. PRODUCT DATA, CERTIFICATES, REPORTS, AND OTHER LITERATURE

B. SUBMITTALS TO BE PROVIDED TO STRUCTURAL ENGINEER

1. STRUCTURAL SUBMITTALS: IN ADDITION TO THE SUBMITTALS REQUIRED BY THE STRUCTURAL SPECIFICATIONS, THE FOLLOWING SUBMITTALS SHALL BE PROVIDED:

   a. SUPPLEMENTAL STEEL REINFORCMENT (IF REQUIRED)
   b. CONCRETE REPAIR MATERIALS
   c. EPOXY-MODIFIED CEMENTITIOUS COATING
   d. EPOXY RESIN FOR CRACK INJECTION
   e. EXPANSION JOINT SYSTEM
   f. JOINT SEALANTS (HORIZONTAL, VERTICAL AND COVE)
   g. TRAFFIC COATINGS
   h. SHORING PLANS (SIGNED AND SEALED BY PROFESSIONAL ENGINEER LICENSED IN TEXAS)

2. SUBMITTAL REQUIREMENTS:

   a. ALL SHOP DRAWINGS MUST BE REVIEWED AND ELECTRONICALLY STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL.
   SELECT ONE OF THE TWO OPTIONS BELOW.
   b. CONTRACTOR SHALL PROVIDE THE SUBMITTAL IN ELECTRONIC PORTABLE DOCUMENT FORMAT (PDF) PER THE SPECIFICATIONS.
   c. THE OMISSION FROM THE SHOP DRAWINGS OF ANY MATERIALS REQUIRED BY THE CONTRACT DOCUMENTS TO BE FURNISHED SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF FURNISHING AND INSTALLING SUCH MATERIALS, REGARDLESS OF WHETHER THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED.

C. REPRODUCTION

1. THE USE OF ELECTRONIC FILES OR REPRODUCTIONS OF THESE CONTRACT DOCUMENTS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES THEIR ACCEPTANCE OF ALL INFORMATION SHOWN HEREON AS CORRECT, AND OBLIGATES THEMSELVES TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HEREON.

PART VII - MISCELLANEOUS

A. CONTRACT DOCUMENTS

1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN ALL CONTRACT DOCUMENTS AND LATEST ADDENDA AND TO SUBMIT SUCH DOCUMENTS TO ALL SUBCONTRACTORS AND MATERIAL SUPPLIERS PRIOR TO THE SUBMITTAL OF SHOP DRAWINGS, FABRICATION OF ANY STRUCTURAL MEMBERS, AND ERECTION IN THE FIELD.

2. CONTRACTOR SHALL FULLY AND PROPERLY IMPLEMENT THE ENGINEERING CONTROLS, WORK PRACTICES, AND RESPIRATORY PROTECTION AGAINST TOXIC AND HAZARDOUS SUBSTANCES INCLUDING RESPIRABLE CRYSTALLINE SILILCA ACCORDING TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OSHA 1926.1153. HENDERSON ROGERS DOES NOT HAVE CONTROL OVER, CHARGE OF, OR RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, NOR SHALL HENDERSON ROGERS BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

3. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE REPAIRED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE.

4. REFER TO DRAWINGS OTHER THAN STRUCTURAL FOR COMPLETE INFORMATION INCLUDING: FLOOR SLAB DEPRESSIONS AND CURBS, EXPANSION JOINT SYSTEMS, PREVIOUS REPAIRS PERFORMED IN THE FACILITY, PRESENCE OF POST-TENSIONING, LOCATION AND SIZE OF STRUCTURAL MEMBERS (BEAMS, CORBELS, COLUMNS, WALLS, ETC.), SLAB THICKNESS, AND OTHER INFORMATION RELEVANT TO THE PROJECT.

5. WHERE MEMBER LOCATIONS ARE NOT SPECIFICALLY DIMENSIONED, MEMBERS ARE EITHER LOCATED ON COLUMNS LINES OR ARE EQUALLY SPACED BETWEEN LOCATED MEMBERS.

6. IF CERTAIN FEATURES ARE NOT FULLY SHOWN OR SPECIFIED ON THE DRAWINGS OR IN THE SPECIFICATIONS, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SHOWN OR SPECIFIED IN SIMILAR CONDITIONS.
COORDINATE BELOW WITH ARCHITECT'S SPECIFICATIONS.

B. DRAWING CONFLICTS

1. THE GENERAL CONTRACTOR SHALL COMPARE THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND REPORT ANY DISCREPANCY BETWEEN EACH SET OF DRAWINGS AND WITHIN EACH SET OF DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND INSTALLATION OF ANY REPLACEMENT ELEMENTS..

C. CONFLICTS IN STRUCTURAL REQUIREMENTS

1. WHERE CONFLICT EXISTS AMONG THE VARIOUS PARTS OF THE STRUCTURAL CONTRACT DOCUMENTS, STRUCTURAL DRAWINGS, GENERAL NOTES, AND SPECIFICATIONS, THE STRICTEST REQUIREMENTS, AS INDICATED BY THE ENGINEER, SHALL GOVERN.

D. EXISTING CONDITIONS

1. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE EXISTING BUILDING AT THE JOB SITE AND REPORT ANY DISCREPANCIES FROM ASSUMED CONDITIONS SHOWN ON THE DRAWINGS TO THE ARCHITECT AND ENGINEER PRIOR TO THE FABRICATION AND ERECTION OF ANY MEMBERS.

2. EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS WAS OBTAINED FROM EXISTING CONSTRUCTION DOCUMENTS AND LIMITED SITE OBSERVATION. THESE DRAWINGS OF EXISTING CONSTRUCTION ARE AVAILABLE FOR CONTRACTOR USE. HOWEVER, THE AVAILABLE DRAWINGS OF EXISTING CONSTRUCTION ARE NOT NECESSARILY COMPLETE. THE CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT INFORMATION.

3. DEMOLITION, CUTTING, DRILLING, ETC. OF EXISTING WORK SHALL BE PERFORMED WITH GREAT CARE SO AS NOT TO JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE EXISTING BUILDING. IF ANY ARCHITECTURAL, STRUCTURAL, OR MEP MEMBERS NOT DESIGNATED FOR REMOVAL INTERFERE WITH THE NEW WORK, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY AND APPROVAL OBTAINED PRIOR TO REMOVAL OF THOSE MEMBERS.

4. TEMPORARY SHORING: SEE SECTION XI.

5. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION AND TAKE CARE TO PROTECT EXISTING UTILITIES THAT ARE TO REMAIN IN SERVICE.

6. THE CONTRACTOR SHALL PROVIDE DUST, ODOR AND NOISE PROTECTION, AND SAFETY MEASURES AS NECESSARY FOR THE DURATION OF REPAIRS. PROVIDE ALL MEASURES NECESSARY TO PROTECT THE EXISTING STRUCTURE, BUILDING INTERIOR, VEHICLES, FACILITY PATRONS AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, TEMPORARY BRACING, SHORING, FORMWORK, PROTECTIVE ENCLOSURES AND TRAFFIC CONTROLS.

7. THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED DURING CONSTRUCTION WITH SIMILAR MATERIALS AND WORKMANSHIP TO RESTORE CONDITIONS TO LEVELS ACCEPTABLE TO THE ARCHITECT.

E. RESPONSIBILITY OF THE CONTRACTOR FOR CONSTRUCTION LOADS

1. THE REPAIRS HAVE BEEN DESIGNED FOR THE LOADS IDENTIFIED WITHIN THESE STRUCTURAL DRAWINGS THAT ARE ANTICIPATED TO BE APPLIED TO THE STRUCTURE ONCE COMPLETED. THE CONTRACTOR SHALL NOT OVERLOAD THE STRUCTURE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING THE ADEQUACY OF THE STRUCTURE TO SUPPORT ANY APPLIED CONSTRUCTION LOADS, INCLUDING THOSE DUE TO CONSTRUCTION VEHICLES OR EQUIPMENT, MATERIAL HANDLING OR STORAGE, SHORING OR RESHORING, OR ANY OTHER CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL SUBMIT CALCULATIONS SIGNED AND SEALED BY AN ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED VERIFYING THE ADEQUACY OF THE STRUCTURE FOR ANY PROPOSED CONSTRUCTION LOADS THAT ARE IN EXCESS OF THE STATED DESIGN LOADS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE TO DESIGN OR CHECK THE STRUCTURE FOR LOADS APPLIED TO THE STRUCTURE FOR ANY CONSTRUCTION ACTIVITY.

F. CONTRACTOR SUBSTITUTIONS

1. ANY MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL THAT ARE DIFFERENT FROM THE MATERIAL OR PRODUCTS SPECIFIED IN THE STRUCTURAL CONTRACT DOCUMENTS WILL BE APPROVED ONLY IF THE FOLLOWING CRITERIA ARE SATISFIED:

   A. A COST SAVINGS TO THE OWNER IS DOCUMENTED AND SUBMITTED WITH THE REQUEST.

   B. THE MATERIAL OR PRODUCT HAS BEEN APPROVED BY THE INTERNATIONAL CODE COUNCIL (ICC) AND THE ICC REPORT IS SUBMITTED WITH THE REQUEST.

      1) THE ICC ESR THAT IS SUBMITTED MUST REFERENCE THE BUILDING CODE UNDER WHICH THE PROJECT IS PERMITTED.

      2) ICC REPORTS THAT HAVE BEEN DISCONTINUED AT THE TIME OF PRODUCT INSTALLATION WILL NOT BE ACCEPTED.

PART VII - MISCELLANEOUS (CONTINUED)

   2. SUBMITTALS NOT SATISFYING THE ABOVE CRITERIA WILL NOT BE CONSIDERED. IN THE CHOICES BELOW.

G. THE STRUCTURAL ENGINEER'S ROLE DURING CONSTRUCTION

1. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

2. PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF HENDERSON ROGERS IS SOLELY FOR THE PURPOSE OF BECOMING GENERALLY FAMILAR WITH THE PROGRESS AND QUALITY OF THE WORK COMPLETED, AND DETERMINING, IN GENERAL, IF THE WORK OBSERVED IS BEING PERFORMED IN A MANNER INDICATING THAT THE WORK, WHEN FULLY COMPLETED, WILL BE IN ACCORDANCE WITH THE REPAIR CONTRACT DOCUMENTS. THIS LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF THE WORK, BUT RATHER PERIODIC IN AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS OR DEFICIENCIES IN THE WORK OF THE CONTRACTOR.

H. MAINTENANCE STATEMENT

1. ALL STRUCTURES REQUIRE PERIODIC MAINTENANCE TO EXTEND LIFESPAN AND TO ENSURE STRUCTURAL INTEGRITY FROM EXPOSURE TO THE ENVIRONMENT. A PLANNED PROGRAM OF MAINTENANCE SHALL BE ESTABLISHED BY THE BUILDING OWNER. THIS PROGRAM SHALL INCLUDE ITEMS SUCH AS, BUT NOT LIMITED TO, PAINTING OF STRUCTURAL STEEL, PROTECTIVE COATINGS FOR CONCRETE, REPACEMENT OF FAILED SEALANTS, CAULKED JOINTS, EXPANSION JOINTS, CONTROL JOINTS, REPAIR OF SPALLS AND CRACKS IN CONCRETE, AND PRESSURE WASHING OF EXPOSED STRUCTURAL ELEMENTS.

PART VIII - GENERAL SEQUENCE OF WORK

A. CONTRACTOR RESPONSIBILITY:

THE SPECIFIC SEQUENCE OF WORK SHALL BE DEVELOPED BY THE CONTRACTOR AND SUBMITTED IN WRITING FOR APPROVAL BY DESIGN TEAM AND HOUSTON AIRPORT SYSTEM (HAS). INFORMATION PRESENTED BELOW IS FOR GENERAL PLANNING PURPOSES.

B. ASSUMPTIONS:

WORK WILL BE PERFORMED AT THE NORTH HELIX BRIDGE FIRST, AND ONCE THAT IS COMPLETED WILL BE FOLLOWED BY SIMILAR WORK AT THE SOUTH HELIX BRIDGE. ALL WORK MUST BE DONE AT NIGHT, BETWEEN THE HOURS OF 9 PM AND 6 AM, UNLESS OTHER TIMES ARE APPROVED IN WRITING BY HOUSTON AIRPORT SYSTEM. WORK WILL BE PERFORMED FROM TOP LEVEL DOWN.

1. SET UP BARRICADES, TRAFFIC CONES AND SIGNAGE AROUND WORK AREA PER HOUSTON AIRPORT SYSTEM (HAS) REQUIREMENTS.
2. PHOTOGRAPH BRIDGE STRUCTURE, CORBELS AND HELIX WALL FOR USE IN DOCUMENTING EXISTING CONDITIONS.
3. CONDUCT PRE-INSTALLATION MEETING AT SITE WITH ARCHITECT, ENGINEER AND HAS REPRESENTATIVE.
4. INSTALL SHORING, EXTENDING FROM BOTTOM OF LEVEL 6 DOWN TO LEVEL 1. LEVEL 1 IS SPACE OCCUPIED BY UNITED AIRLINES BHS OPERATIONS, WHICH IS A SECURE AREA. PROPER CREDENTIALS ARE REQUIRED FOR ACCESS TO THAT AREA.
5. REPAIR CORBELS:
   a. REPAIR CORBELS ON ONE LEVEL AT A TIME SO THAT ONLY ONE BRIDGE LEVEL IS ABLE TO LOAD SHORING STRUCTURE.
   b. REMOVE ALL UNSOUND CONCRETE AND PORTIONS OF SOUND CONCRETE TO ACHIEVE THE REQUIRED DEPTH TO EXPOSE ALL CORRODED REINFORCEMENT.
   c. NOTIFY ENGINEER ONCE REBAR HAS BEEN EXPOSED SO A SITE OBSERVATION CAN BE MADE.
   d. IF NO FURTHER CONCRETE REMOVAL IS REQUIRED BY ENGINEER, CLEAN THE REBAR AND APPLY PROTECTIVE COATING.
   e. PREPARE SUBSTRATE PER MANUFACTURER'S RECOMMENDATIONS AND PLACE CONCRETE OR CONCRETE REPAIR PRODUCTS TO RESTORE CORBEL BACK TO ITS ORIGINAL SIZE AND CONFIGURATION.
   f. ALLOW CONCRETE OR CONCRETE REPAIR PRODUCTS TO CURE AS RECOMMENDED BY THE MANUFACTURER BUT NO LESS THAN 7 DAYS.
6. REPAIR BEARING PLATES:
   a. CLEAN STEEL PLATES BY ABRASIVE BLASTING.
   b. NOTIFY ENGINEER ONCE STEEL HAS BEEN CLEANED SO MEASUREMENTS AND FURTHER ASSESSMENT CAN BE MADE.
   c. IF NO OTHER REMEDIAL MEASURES ARE NEEDED, APPLY CORROSION-INHIBITING COATING TO CLEANED SURFACES.
7. CLEAN GIRDERS:
   a. PREPARE BOX GIRDERS WITH ABRASIVE BLAST CLEANING OR HAND AND POWER TOOLS, OR OTHER APPROVED METHOD.
   b. APPLY CORROSION-INHIBITING COATING TO CLEANED SURFACES.
8. REPAIR CONCRETE SLABS AND BEAMS:
   a. PREPARE CRACKS AND SPALLED AREAS TO RECEIVE REPAIR PRODUCTS.
   b. APPLY PRODUCTS AND ALLOW TO CURE AS RECOMMENDED BY THE MANUFACTURER.
9. REPAIR ITEMS AT TOP SURFACES OF BRIDGE:
   a. REMOVE EXISTING EXPANSION JOINTS AND CLEAN SURFACES.
   b. INSTALL NEW EXPANSION JOINT SYSTEM PER MANUFACTURER'S INSTRUCTIONS.
   c. REPAIR SPALLS AND CRACKS IN CONCRETE DECK AND CURBS.
   d. REPAIR SPALLS AND CRACKS IN CONCRETE WALLS.
   e. REPLACE JOINT SEALANT IN PRECAST PANELS.
   f. REPLACE TRAFFIC COATING.
10. REPEAT PROCEDURES ABOVE FOR EACH BRIDGE LEVEL, AND AT SOUTH BRIDGE STRUCTURE.

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A. No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.:	20-03
PROJECT STATUS:	CONSTRUCTION DOCUMENTS

REVISIONS

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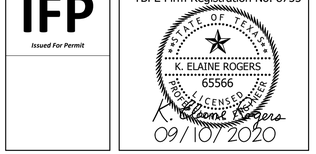
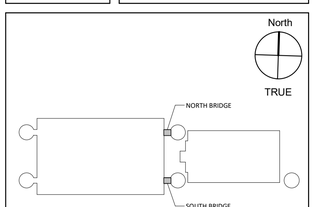
Review/ Approval Category

IFP

Issued For Permit

Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755





SHEET NAME: GENERAL NOTES

SHEET No. SF002 SCALE:

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

HAS FILE:

PLOT DATE:
DOA DWG FILE:
OLD DOA No. :

GENERAL STRUCTURAL NOTES

PART IX - DRAWING INTERPRETATION

A. DRAWING VIEWS LABELED AS "TYPICAL"

1. PARTIAL PLANS, ELEVATIONS, SECTIONS, DETAILS, OR SCHEDULES LABELED WITH "TYPICAL" AT THE BEGINNING OF THEIR TITLE SHALL APPLY TO ALL SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY SHOWN. THE APPLICABILITY OF THE CONTENT OF THESE VIEWS TO LOCATIONS ON THE PLAN CAN BE DETERMINED FROM THE TITLE OF THE VIEWS. SUCH VIEWS SHALL APPLY WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION. DECISIONS REGARDING APPLICABILITY OF THESE "TYPICAL" VIEWS SHALL BE DETERMINED BY THE STRUCTURAL ENGINEER.

B. STRUCTURAL ABBREVIATIONS AND NOTATIONS

1. THE FOLLOWING ABBREVIATIONS AND NOTATIONS MAY APPEAR ON THE DRAWINGS:

@	AT
#	NUMBER
APPROX	APPROXIMATE
BM	BEAM
CL	CENTERLINE
COL	COLUMN
CONC	CONCRETE
CSP	CONCRETE SURFACE PROFILE
CONT	CONTINUOUS
COORD	COORDINATE
DIM	DIMENSION
EA	EACH
EXIST	EXISTINGF
EXP	EXPANSION
F'c	CONCRETE STRENGTH
FV	FIELD VERIFY
FY	YIELD STRENGTH
GALV	GALVANIZE (D)
GEN	GENERAL
ICRI	INTERNATIONAL CONCRETE REPAIR INSTITUTE
MAX	MAXIMUM
MIN	MINIMUM
NTS	NOT TO SCALE
OC	ON CENTER
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
QTY	QUANTITY
R	REACTION
REINF	REINFORCEMENT
SPA	SPACING
SQ	SQUARE
TI	TASK ITEM
TOC	TOP OF CONCRETE
TYP	TYPICAL

PART X - QUANTITY TABLE

A. POSSIBLE CHANGES IN QUANTITY OF WORK

1. BIDDER UNDERSTANDS THAT THE QUANTITIES SPECIFIED HEREIN FOR THE REPAIRS ARE APPROXIMATE AND THAT ACTUAL QUANTITIES IN THE FIELD MAY INCREASE OR DECREASE FROM THE QUANTITIES ESTIMATED. BIDDER HERBY AGREES TO PERFORM ALL QUANTITIES OF WORK AS EITHER INCREASED OR DECREASED, AS REQUIRED BY THE ENGINEER IN ACCORDANCE WITH THE PROVISIONS OF THE CONSTRUCTION DOCUMENTS. THE FINAL PAYMENT TO THE BIDDER SHALL BE BASED ON THE LUMP SUM/UNIT PRICES BID AND THE ACTUAL QUANTITIES COMPLETED (FOR ITEMS THAT ARE NOT LUMP SUM).

B. BID QUANTITIES: ASSUMED QUANTITIES FOR THE BID ITEMS SHOWN ON THE DRAWINGS ARE AS INDICATED IN THE BID TABLE BELOW:

ITEM DESCRIPTION	UNIT	QUANTITY (PER GARAGE LEVEL)
CONCRETE REPAIR (WITH EXPOSED REBAR)	S.F.	100
CONCRETE REPAIR (NO EXPOSED REBAR)	S.F.	300
CRACK SEALER (HAIRLINE CRACKS)	L.F.	250
CRACK EPOXY INJECTION	L.F.	100

DESCRIPTION OF ABBREVIATIONS:

L.F. = LINEAL FEET
S.F. = SQUARE FEET
L.S. = LUMP SUM
EA = EACH

PART XI - TEMPORARY SHORING

A. EACH LEVEL OF THE BRIDGE STRUCTURE MUST BE SHORED UNTIL CORBELS ON THAT LEVEL ARE REPAIRED.

B. SHORING SHALL BE DESIGNED AND CONFIGURED SO THAT ONLY THE LEVEL BEING REPAIRED CAN IMPART LOAD ONTO THE SHORING POSTS.

C. REFER TO SHORING PLANS FOR PROPOSED SHORING POST LOCATIONS. EXACT PLACEMENT MUST BE DETERMINED AT THE JOB SITE TAKING INTO CONSIDERATION ALL EXISTING CONDITIONS AND IN COORDINATION WITH TRAFFIC CONTROL MEASURES AND ON-GOING OPERATIONS IN UNITED AIRLINES BAGGAGE ROOM.

D. REFER TO SHORING PLANS FOR REQUIRED DESIGN LOADS.

E. SUBMIT SHOP DRAWINGS FOR SHORING SYSTEM INDICATING DESIGN CAPACITY AND PLACEMENT PROCEDURES. DRAWINGS SHALL BE SIGNED AND SEALED BY ENGINEER LICENSED IN STATE OF TEXAS.

HOUSTON AIRPORTS

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C.O.H. No. | D.O.A. No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

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5	ISSUED FOR PERMIT	09/10/2020	HRSE

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APPROVAL DATE:	

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65566
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K. Elaine Rogers
09/10/2020

North
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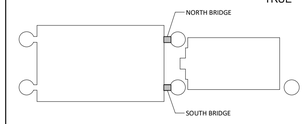
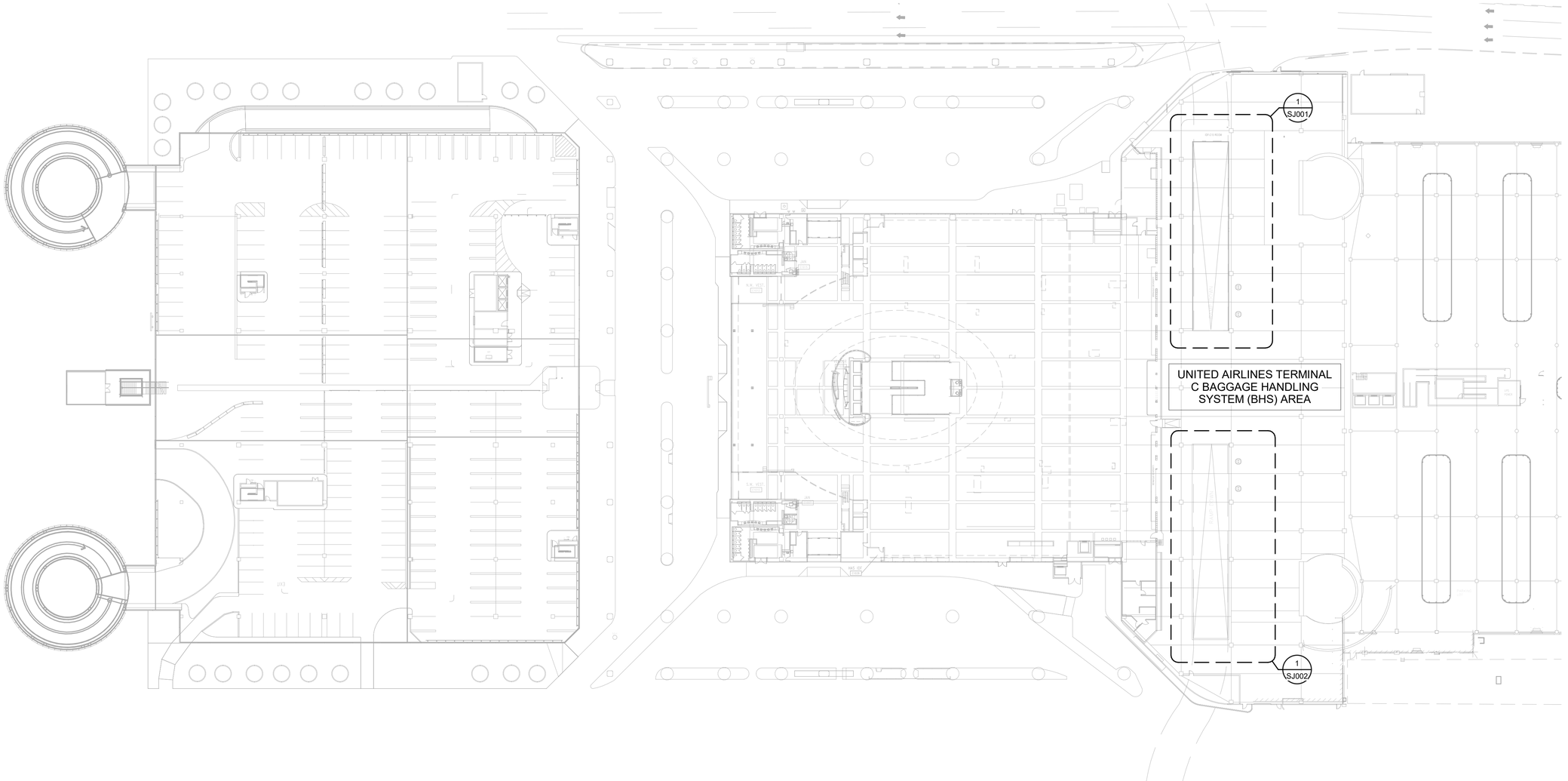


SHEET NAME: GENERAL NOTES

SHEET No. SF003 **SCALE:**

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt
HAS FILE:
PLOT DATE:
DOA DWG FILE:
OLD DOA No. :



1 OVERALL FRAMING PLAN - LEVEL 1

1" = 40'-0"

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

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SHEET SIZE: 22"x34" ANSI-D

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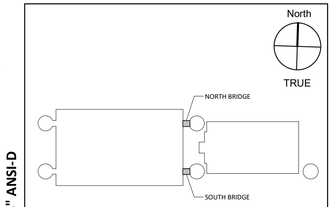

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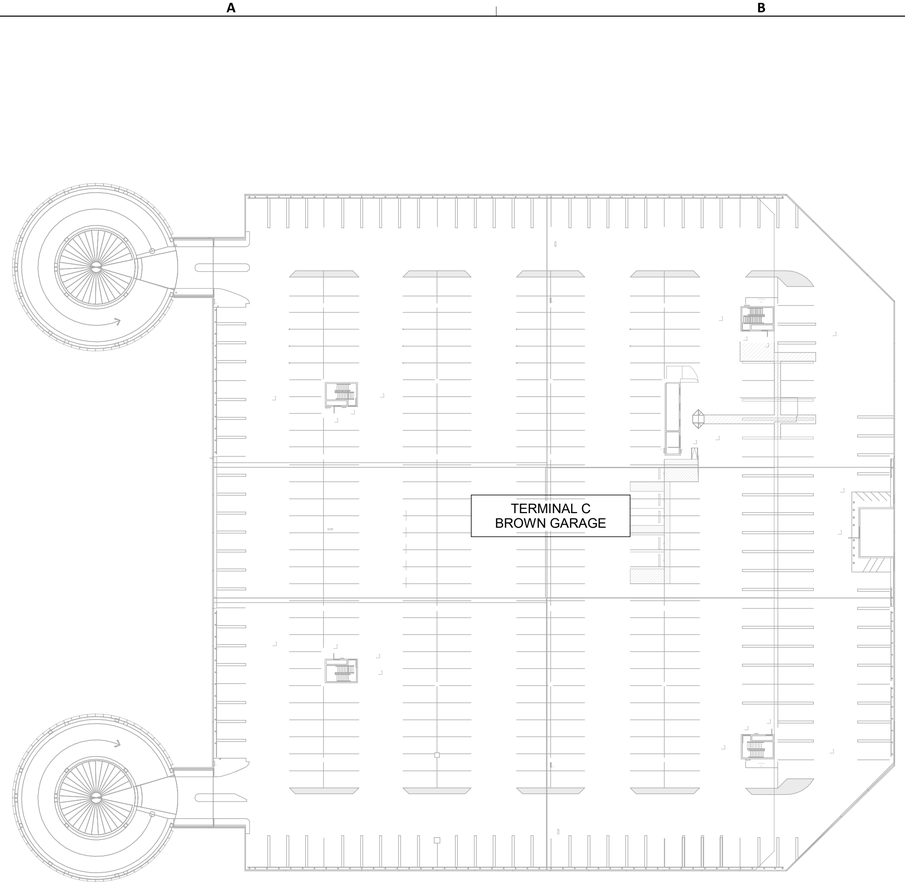
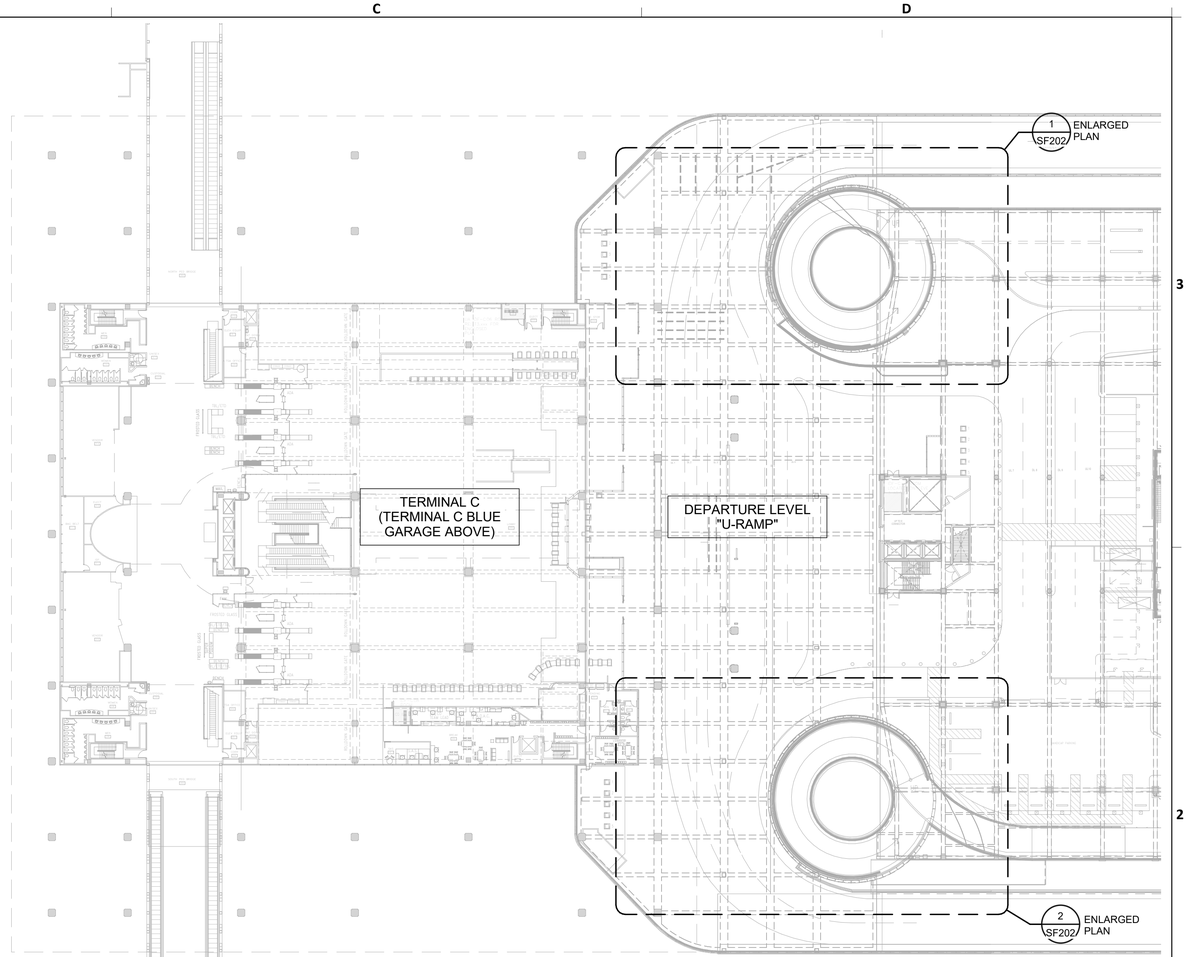
SHEET No. SF101 **SCALE:** 1" = 40'-0"





1 OVERALL FRAMING PLAN - LEVEL 2

1" = 40'-0"

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

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PLOT DATE:

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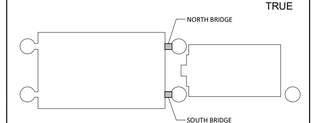
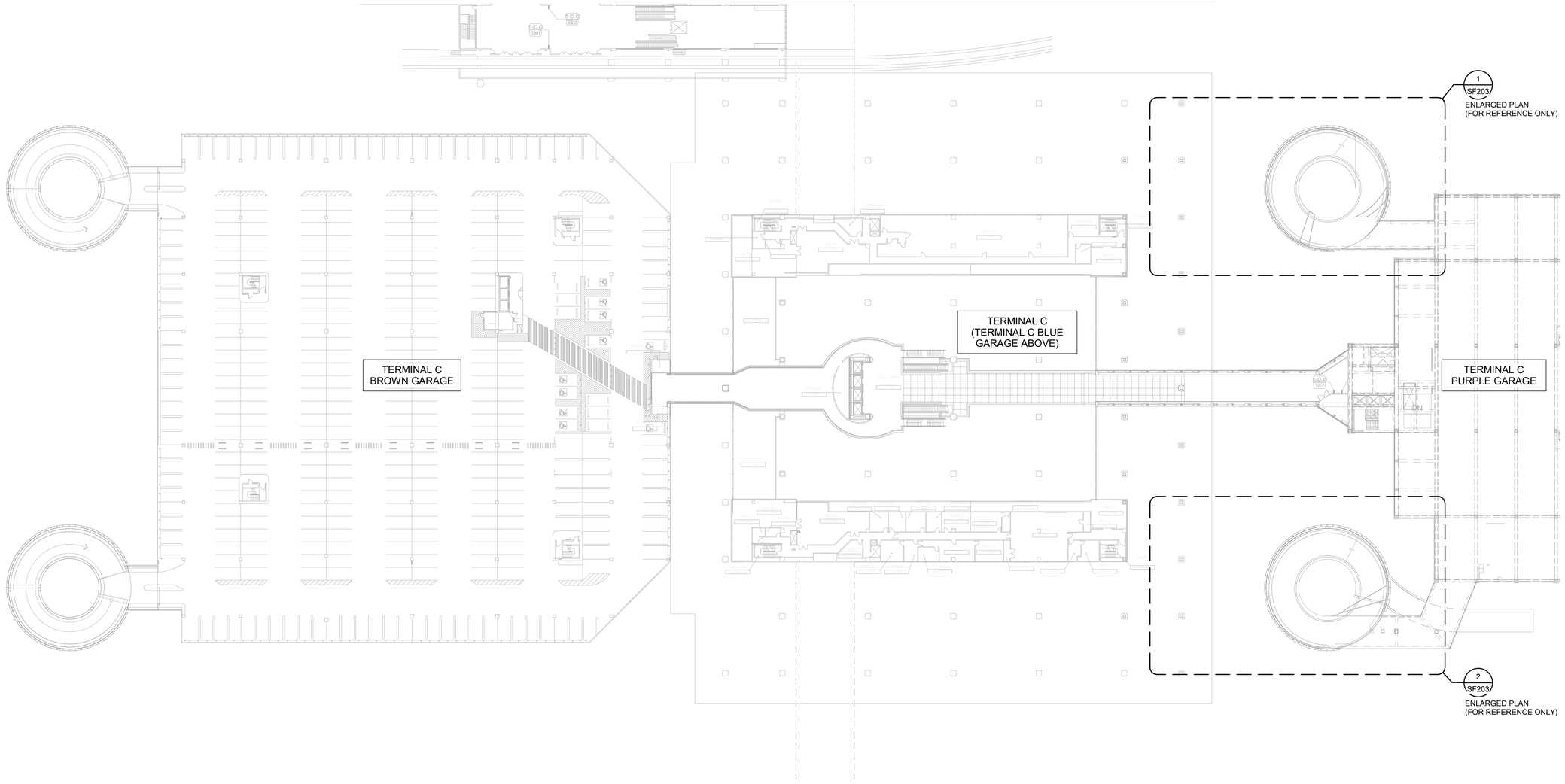


SHEET NAME: OVERALL FRAMING PLAN - LEVEL 2

SHEET No. SF102

SCALE: 1" = 40'-0"

SHEET SIZE: 22"x34" ANSI-D



1 OVERALL FRAMING PLAN - LEVEL 3

1" = 40'-0"

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

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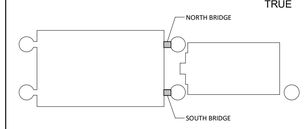
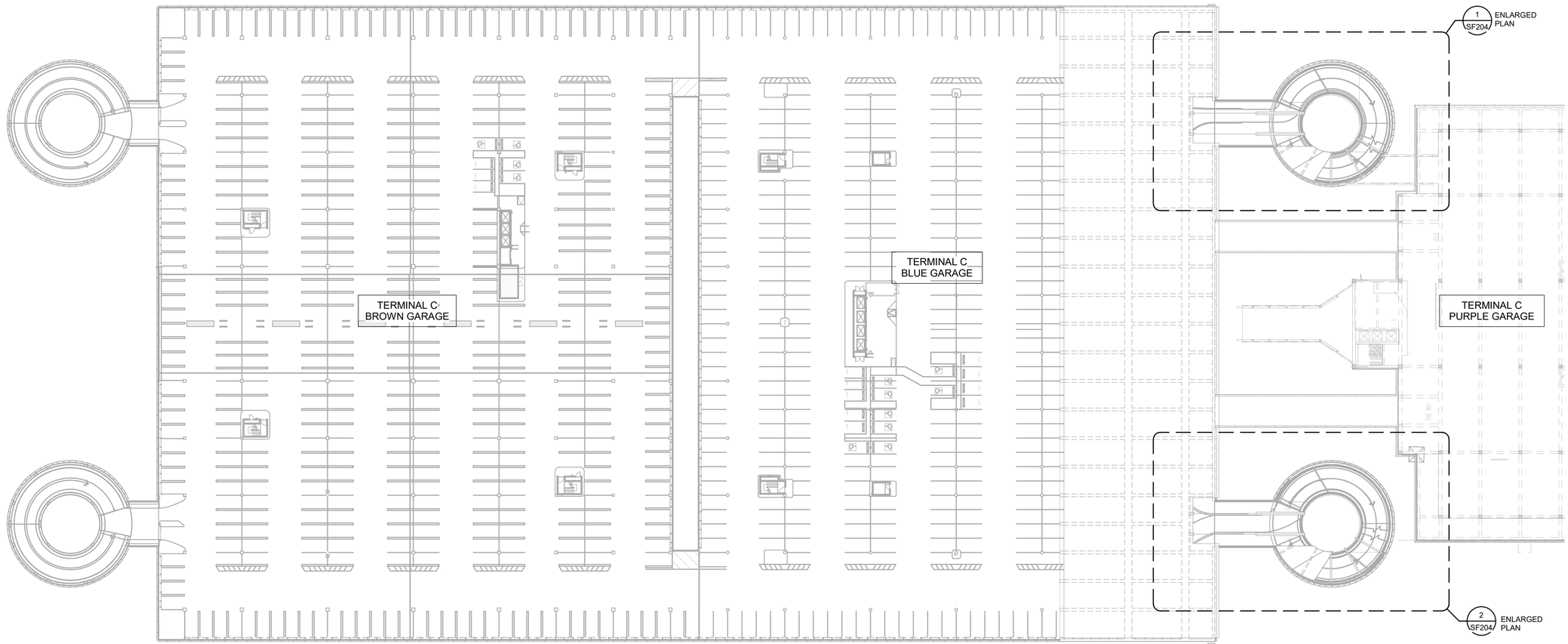


SHEET NAME: OVERALL FRAMING PLAN - LEVEL 3

SHEET No. SF103

SCALE: 1" = 40'-0"

SHEET SIZE: 22"x34" ANSI-D



1 OVERALL FRAMING PLAN - LEVEL 4

1" = 40'-0"

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HAS FILE:

PLOT DATE:

DOA DWG FILE:

OLD DOA No. :

SHEET SIZE: 22"x34" ANSI-D

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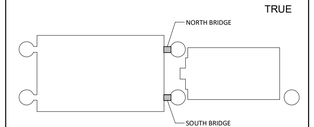
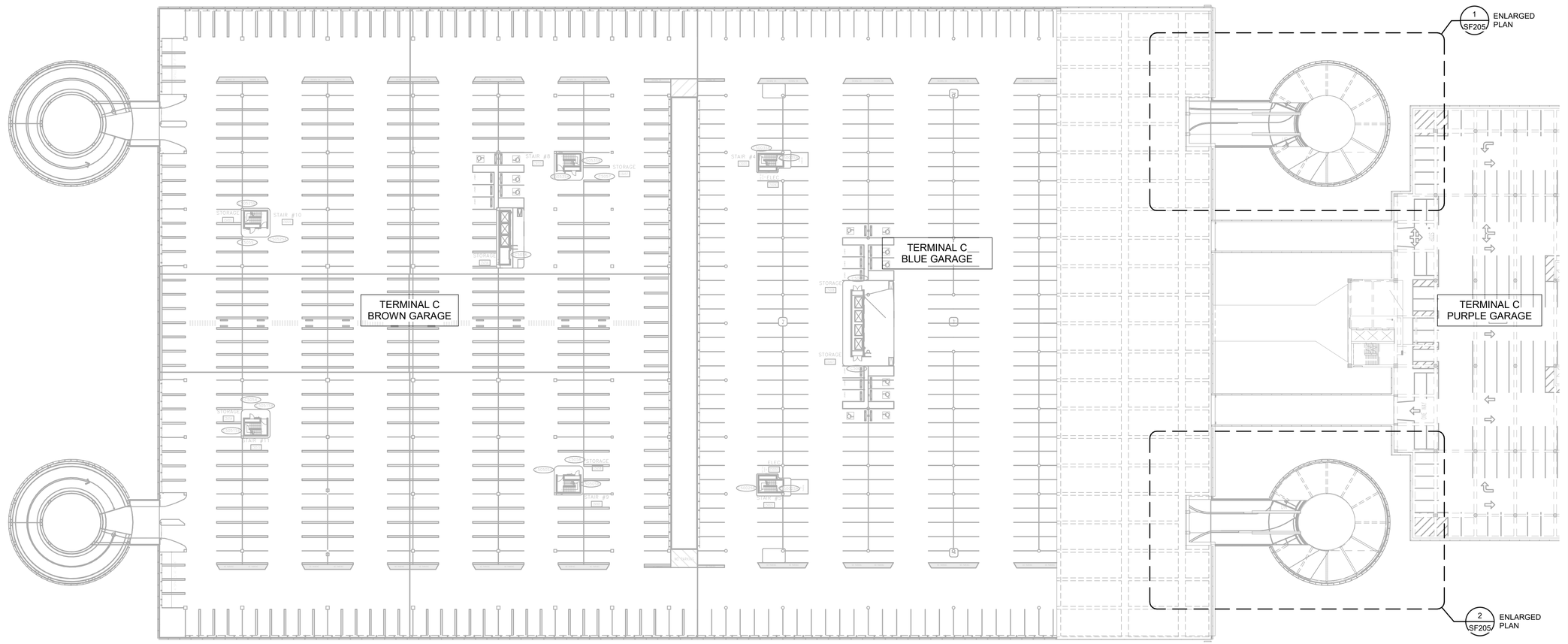


SHEET NAME: OVERALL FRAMING PLAN - LEVEL 4

SHEET No. SF104 **SCALE:** 1" = 40'-0"



1 OVERALL FRAMING PLAN - LEVEL 5

1" = 40'-0"

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

HAS FILE:

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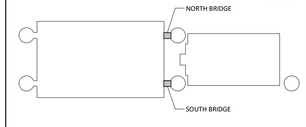
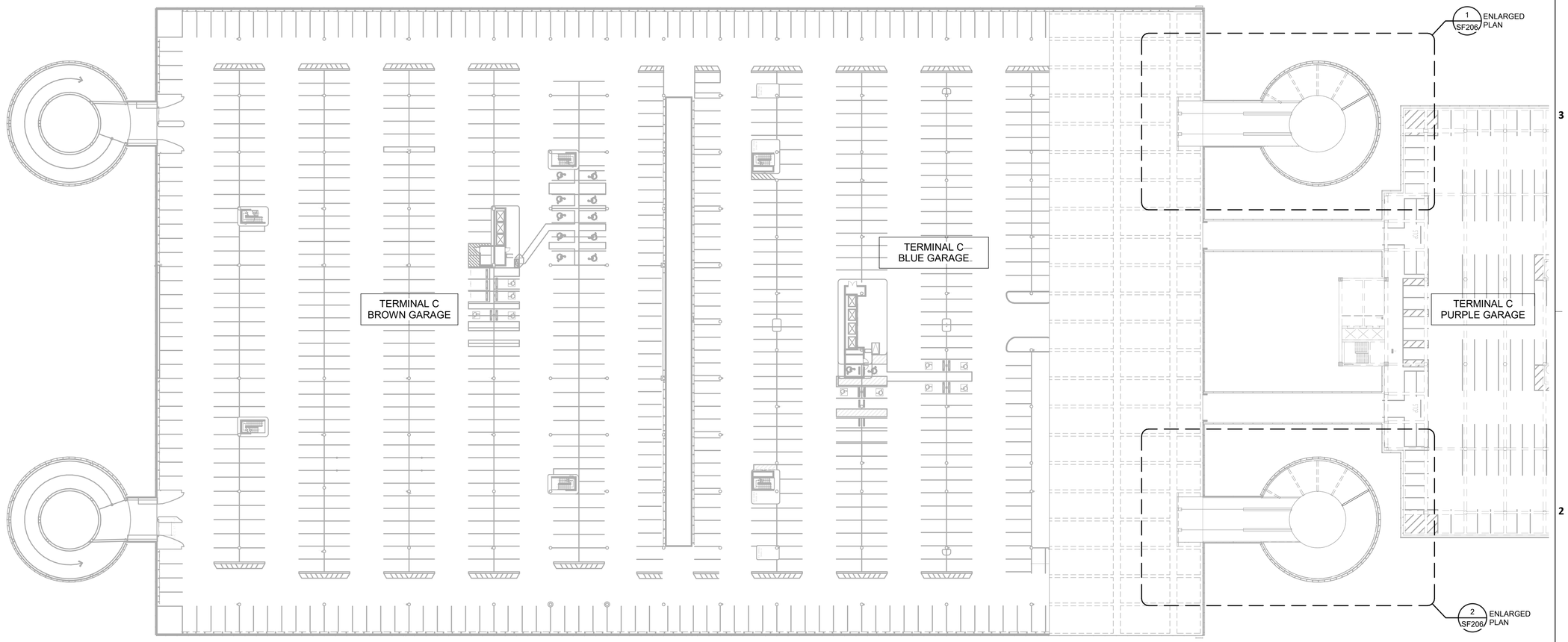


SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: OVERALL FRAMING PLAN - LEVEL 5

SHEET No. SF105 **SCALE:** 1" = 40'-0"



1 OVERALL FRAMING PLAN - LEVEL 6

1" = 40'-0"

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

HAS FILE:

PLOT DATE:

DOA DWG FILE:

OLD DOA No. :

SHEET SIZE: 22"x34" ANSI-D

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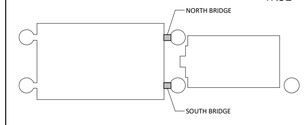
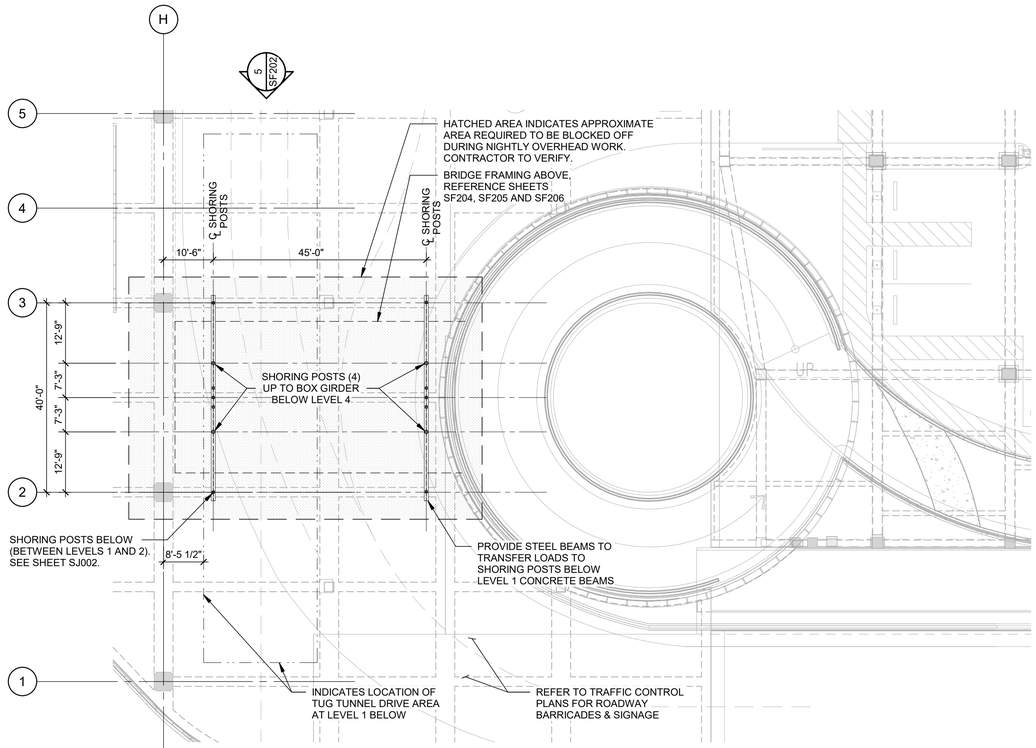


SHEET NAME: OVERALL FRAMING PLAN - LEVEL 6

SHEET No. SF106 **SCALE:** 1" = 40'-0"

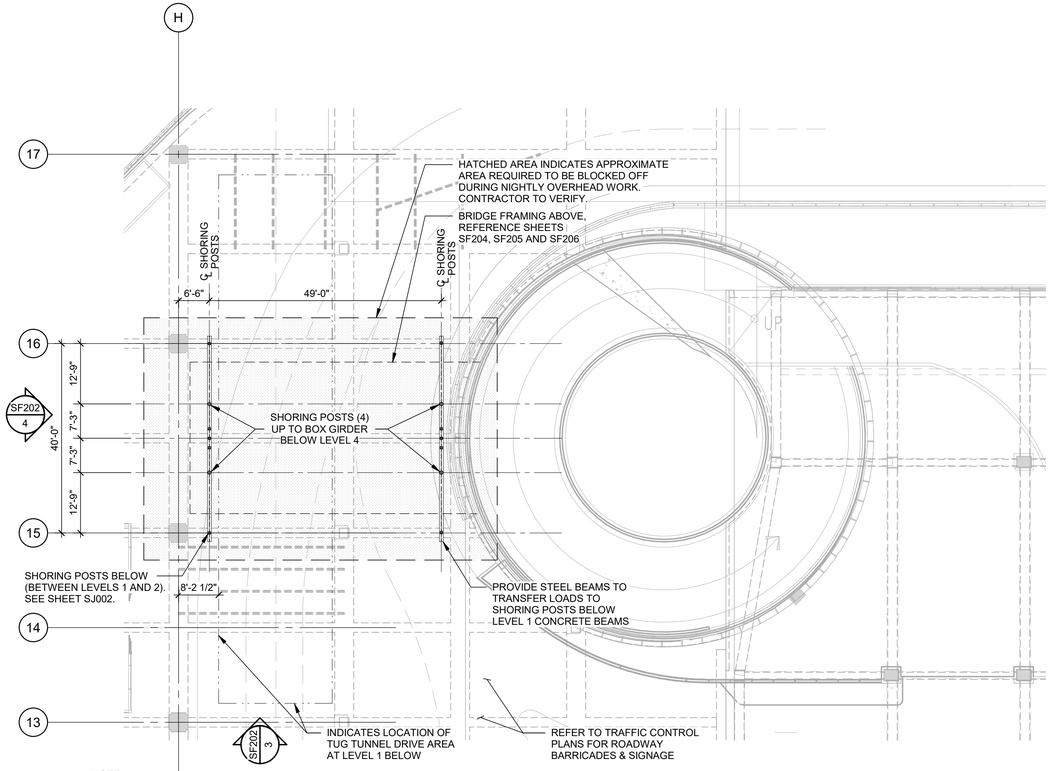


NOTE:

1. IN ADDITION TO SHORING FOR BOX BEAMS, SCAFFOLDING, WORK PLATFORMS ETC., WILL BE REQUIRED TO PERFORM WORK AT UNDERSIDE OF BRIDGE AT LEVEL 4. WORK SHOULD BE DONE AT NIGHT OR OTHER OFF-PEAK TIMES SO THAT DRIVE LANES ARE KEPT CLEAR AS INICATED ON THE TRAFFIC CONTROL PLANS . COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S REPRESENTATIVE.

2 SOUTH PARTIAL FRAMING PLAN - LEVEL 2 (U-RAMP) — PHASE 2

1/16" = 1'-0"



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1 NORTH PARTIAL FRAMING PLAN - LEVEL 2 (U-RAMP) — PHASE 1

1/16" = 1'-0"

5 BRIDGE AT SOUTH HELIX

NTS

4 UNDERSIDE OF BRIDGE AT NORTH HELIX

NTS

3 BRIDGE AT NORTH HELIX

NTS

HOUSTON AIRPORTS

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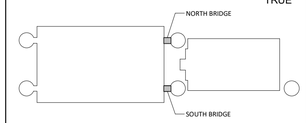

SHEET NAME:	PARTIAL FRAMING PLAN - LEVEL 2
SHEET No.	SF202
SCALE:	As indicated

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

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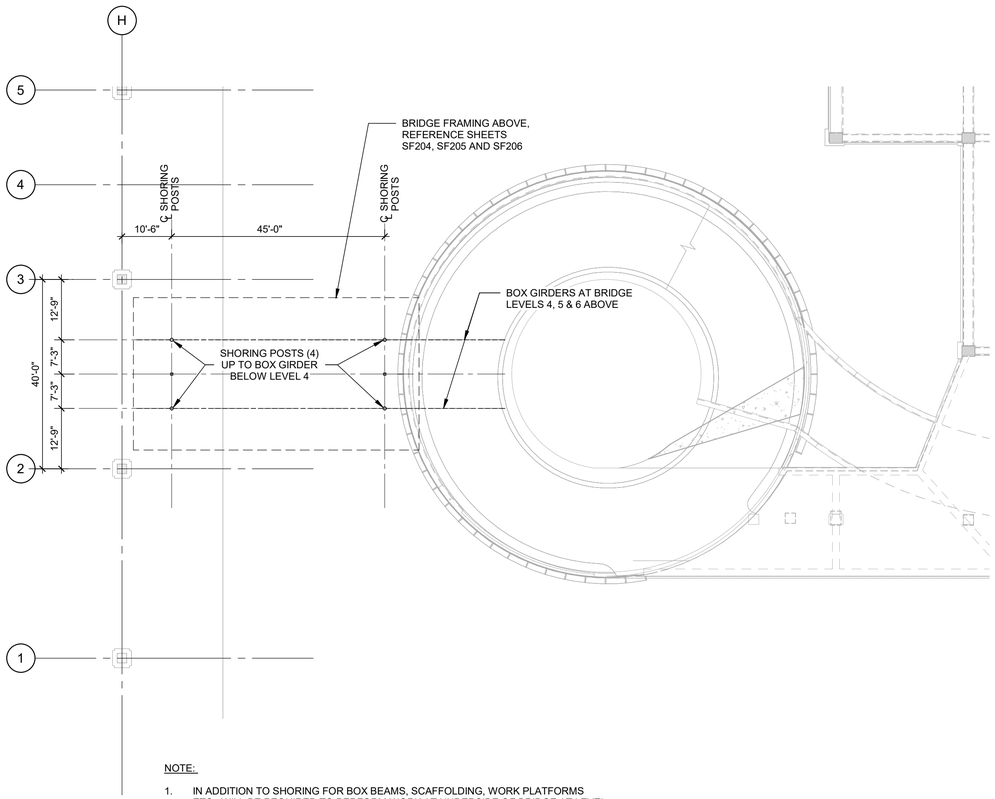
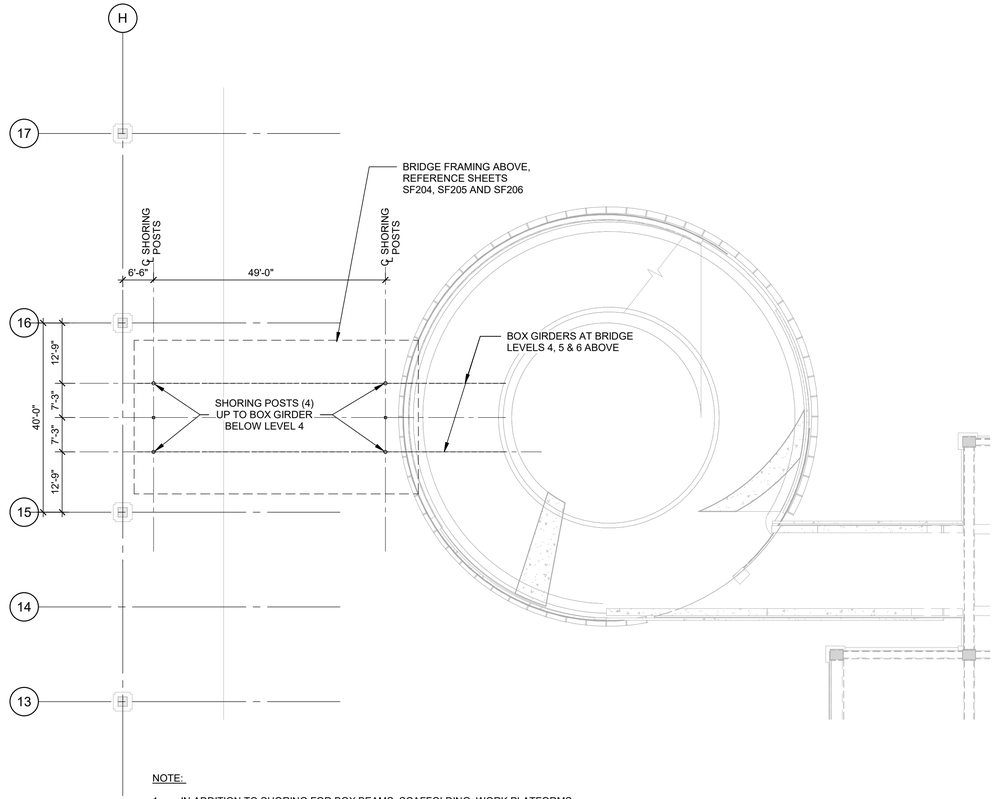


NOTE:

1. IN ADDITION TO SHORING FOR BOX BEAMS, SCAFFOLDING, WORK PLATFORMS ETC., WILL BE REQUIRED TO PERFORM WORK AT UNDERSIDE OF BRIDGE AT LEVEL 4. WORK SHOULD BE DONE AT NIGHT OR OTHER OFF-PEAK TIMES SO THAT DRIVE LANES ARE KEPT CLEAR AS INICATED ON THE TRAFFIC CONTROL PLANS . COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S REPRESENTATIVE.

2 SOUTH PARTIAL FRAMING PLAN - LEVEL 3 — PHASE 2

1/16" = 1'-0"



NOTE:

1. IN ADDITION TO SHORING FOR BOX BEAMS, SCAFFOLDING, WORK PLATFORMS ETC., WILL BE REQUIRED TO PERFORM WORK AT UNDERSIDE OF BRIDGE AT LEVEL 4. WORK SHOULD BE DONE AT NIGHT OR OTHER OFF-PEAK TIMES SO THAT DRIVE LANES ARE KEPT CLEAR AS INICATED ON THE TRAFFIC CONTROL PLANS . COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER'S REPRESENTATIVE.

1 NORTH PARTIAL FRAMING PLAN - LEVEL 3 — PHASE 1

1/16" = 1'-0"

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A. No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 20-03

PROJECT STATUS: CONSTRUCTION DOCUMENTS

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4	ISSUED FOR 100% REVIEW	07/31/2020	
5	ISSUED FOR PERMIT	09/10/2020	HRSE

DESIGNER:	ER
DRAWN BY:	RR
CHECKED BY:	ER
ISSUE DATE:	09/10/2020
APPROVED BY:	ER
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

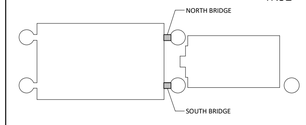
Review/ Approval Category

IFP
Issued For Permit

Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755

STATE OF TEXAS
K. ELAINE ROGERS
65566
PROFESSIONAL ENGINEER
09/10/2020

North
TRUE



SHEET NAME: PARTIAL FRAMING PLAN - LEVEL 3

SHEET No. SF203 **SCALE:** 1/16" = 1'-0"

SHEET SIZE: 22"x34" ANSI-D

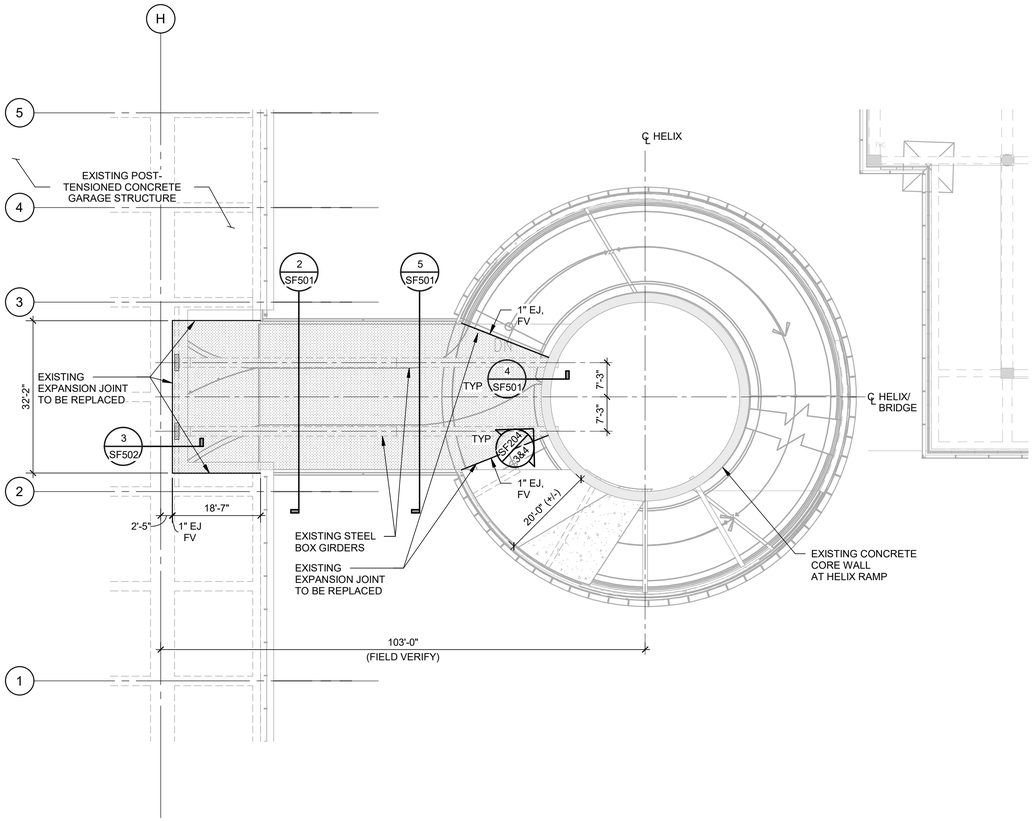
FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

HAS FILE:

PLOT DATE:

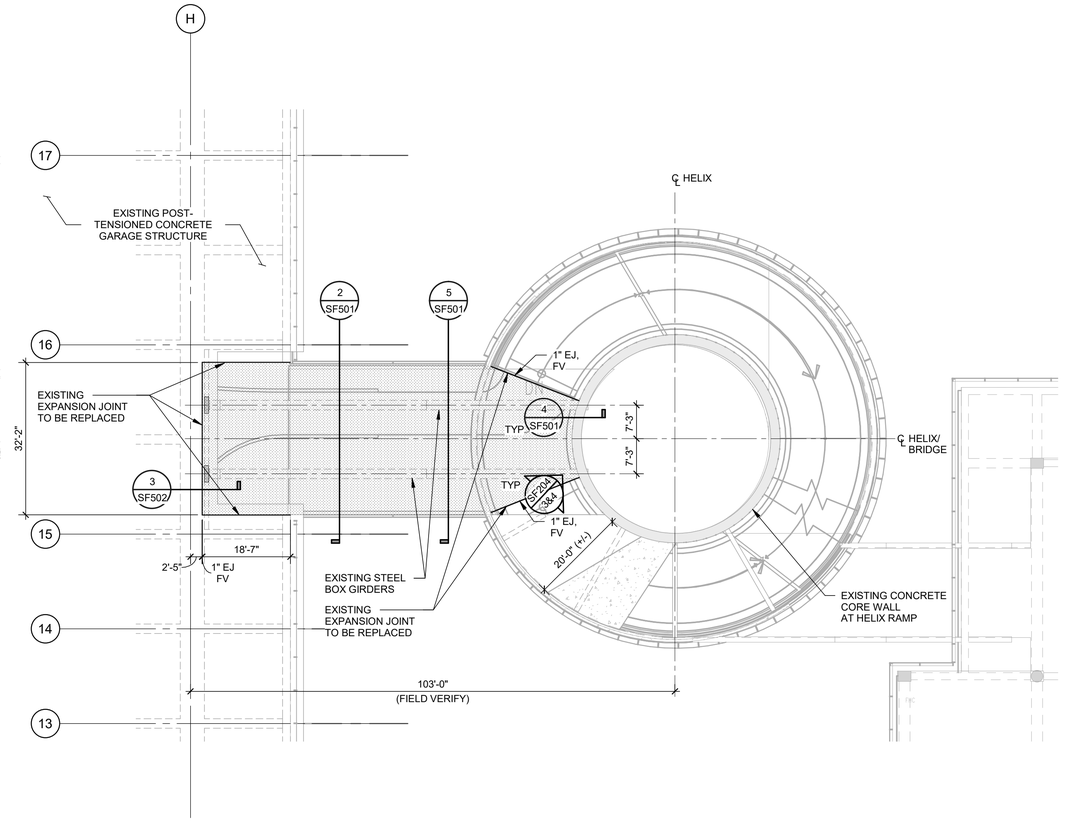
DOA DWG FILE:

OLD DOA No. :



2 SOUTH PARTIAL FRAMING PLAN - LEVEL 4 — PHASE 2

1/16" = 1'-0"



1 NORTH PARTIAL FRAMING PLAN - LEVEL 4 — PHASE 1

1/16" = 1'-0"

4 CORROSION OF STEEL GIRDER AT WALL CONNECTION

NTS

3 CORROSION OF STEEL GIRDER AT WALL CONNECTION

NTS

REPAIR WORK AT LEVEL 4 (NORTH & SOUTH):

1. REPAIR SPALLS, CRACKS & DELAMINATED CONCRETE ON TWO CORBELS - SEE DETAILS ON SHEET SF502.
2. CLEAN AND COAT STEEL BEARING PLATES AT CORBELS - SEE DETAILS ON SHEET SF502.
3. CLEAN AND COAT CORRODED STEEL BOX GIRDER - SEE DETAILS ON SHEET SF501.
4. CLEAN AND COAT CORRODED STEEL BOX GIRDER AT CONNECTION TO HELIX WALL - SEE DETAILS ON SHEET SF501.
5. REPLACE EXPANSION JOINT - SEE DETAIL 5/SF502.
6. REPLACE DETERIORATED JOINT SEALANT AT PRECAST PANEL JOINTS, COVE JOINTS AND FLOOR DRAINS.
7. CLEAN AND COAT CORRODED FLOOR DRAINS.
8. REPLACE DETERIORATED TRAFFIC COATING IN AREA INDICATED THUSLY: ▨ REFER TO SPEC SECTION 07 18 16 DECK COATING SYTEM.
9. SEE SHEET SK001 FOR PHOTOS OF TYPICAL REPAIR CONDITIONS.

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

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C.O.H. No.	D.O.A. No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

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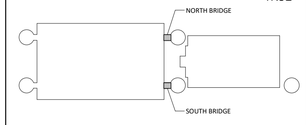
TBPE Firm Registration No. 8755

STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
09/10/2020

North
TRUE

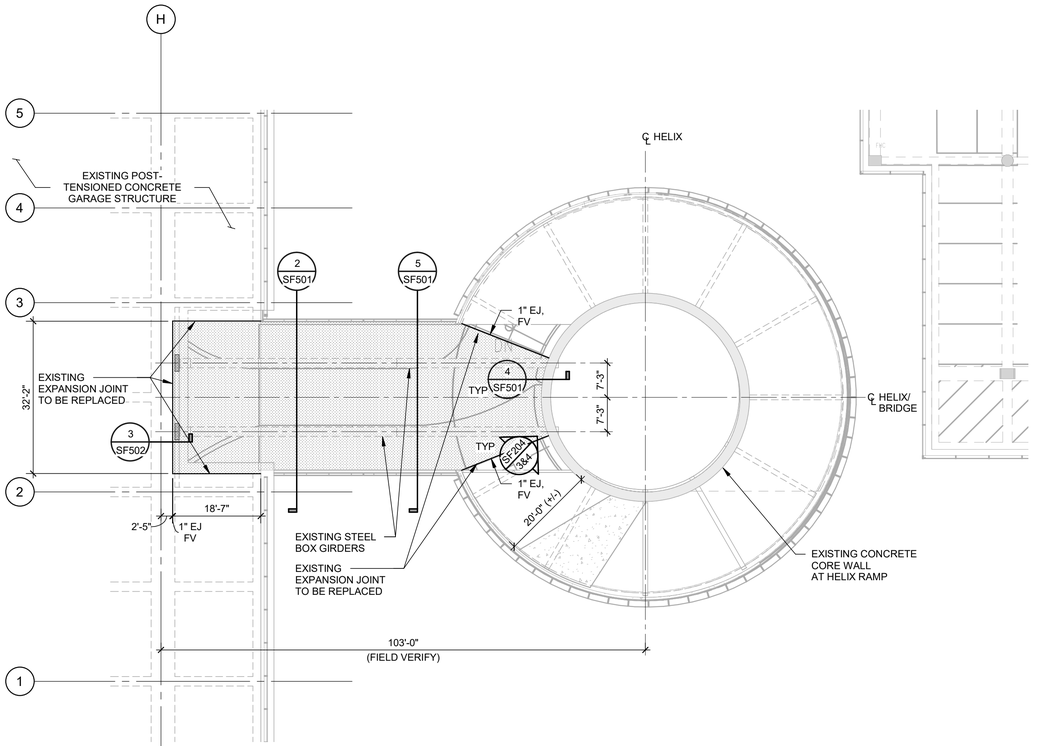


SHEET NAME: PARTIAL FRAMING PLAN - LEVEL 4

SHEET No. SF204 | SCALE: As indicated

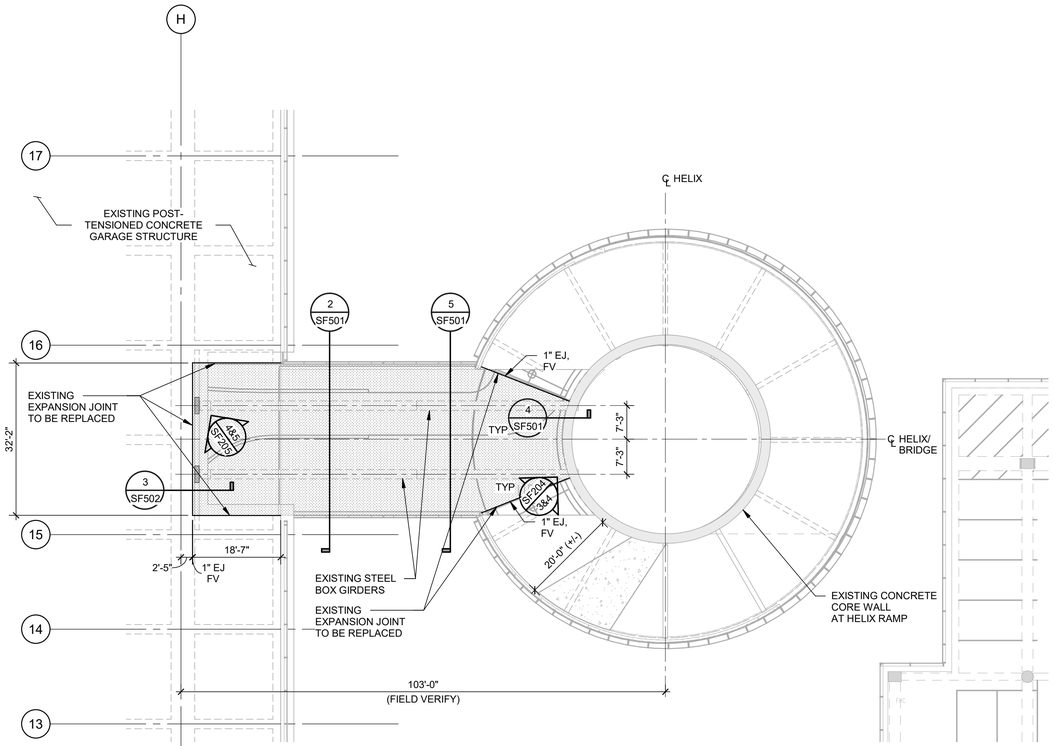
SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt
HAS FILE:
PLOT DATE:
DOA DWG FILE:
OLD DOA No. :



2 SOUTH PARTIAL FRAMING PLAN - LEVEL 5 — PHASE 2

1/16" = 1'-0"

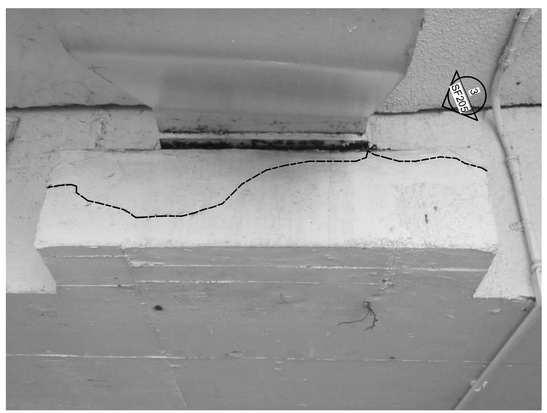


1 NORTH PARTIAL FRAMING PLAN - LEVEL 5 — PHASE 1

1/16" = 1'-0"

REPAIR WORK AT LEVEL 5 (NORTH & SOUTH):

1. REPAIR SPALLS, CRACKS & DELAMINATED CONCRETE ON TWO CORBELS - SEE DETAILS ON SHEET SF502.
2. CLEAN AND COAT STEEL BEARING PLATES AT CORBELS - SEE DETAILS ON SHEET SF502.
3. CLEAN AND COAT CORRODED STEEL BOX GIRDER - SEE DETAILS ON SHEET SF501.
4. CLEAN AND COAT CORRODED STEEL BOX GIRDER AT CONNECTION TO HELIX WALL - SEE DETAILS ON SHEET SF501.
5. REPLACE EXPANSION JOINT - SEE DETAIL 5/SF502.
6. REPLACE DETERIORATED JOINT SEALANT AT PRECAST PANEL JOINTS, COVE JOINTS AND FLOOR DRAINS.
7. CLEAN AND COAT CORRODED FLOOR DRAINS.
8. REPLACE DETERIORATED TRAFFIC COATING IN AREA INDICATED THUSLY: ▨ REFER TO SPEC SECTION 07 18 16 DECK COATING SYTEM.
9. SEE SHEET SK001 FOR PHOTOS OF TYPICAL REPAIR CONDITIONS.



5 CRACKED & DELAMINATED CONCRETE AT CORBEL

NTS

4 CORROSION OF STEEL GIRDER AND CRACKED & SPALLED CONCRETE AT CORBEL

NTS

3 CORRODED STEEL PLATES IN SLIDE BEARING ASSEMBLY

NTS

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A. No.

MWA ARCHITECTS
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HOUSTON, TEXAS 77079 - 713-482-2338

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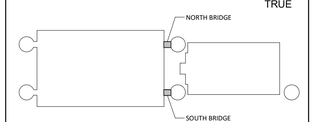
Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755
STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
K. Elaine Rogers
09/10/2020

North
TRUE

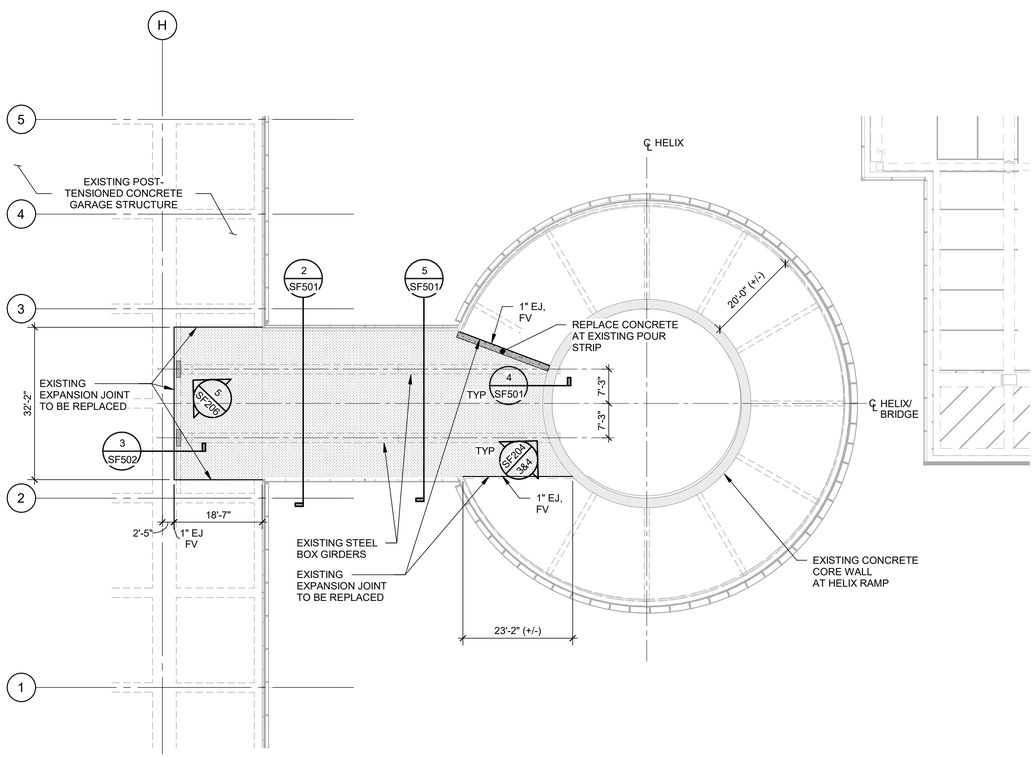


SHEET NAME: PARTIAL FRAMING PLAN - LEVEL 5

SHEET No.: SF205 SCALE: As indicated

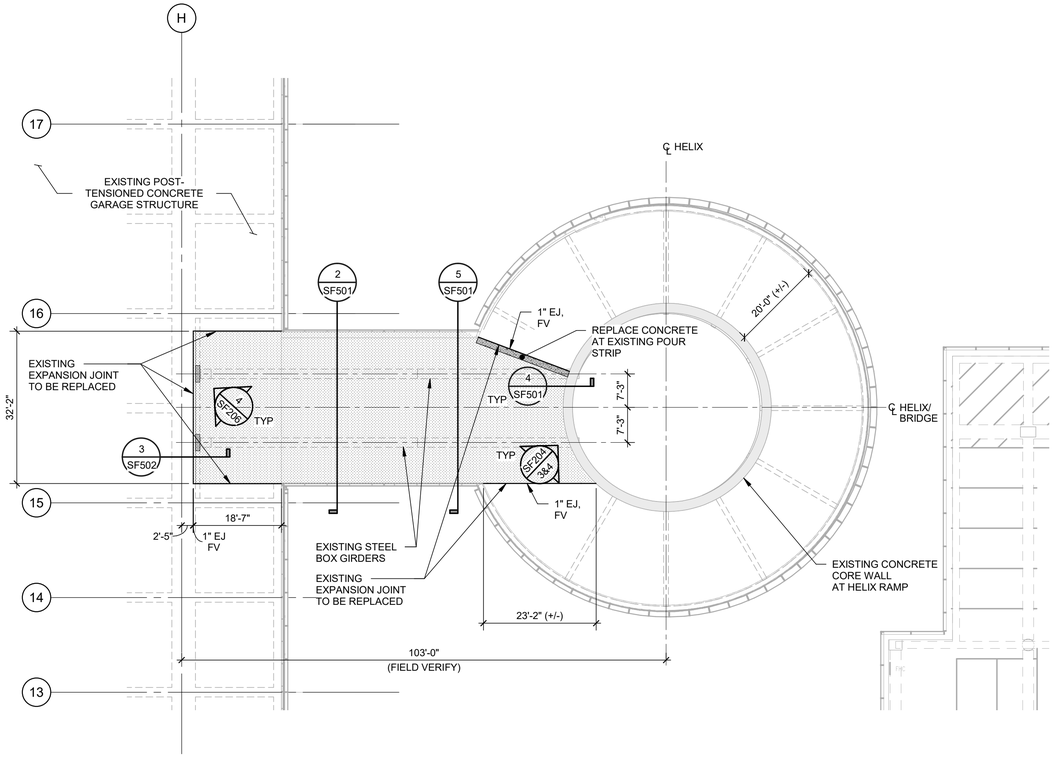
SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt
HAS FILE:
PLOT DATE:
DOA DWG FILE:
OLD DOA No. :



2 SOUTH PARTIAL FRAMING PLAN - LEVEL 6 — PHASE 2

1/16" = 1'-0"



1 NORTH PARTIAL FRAMING PLAN - LEVEL 6 — PHASE 1

1/16" = 1'-0"

REPAIR WORK AT LEVEL 6 (NORTH & SOUTH):

1. REPAIR SPALLS, CRACKS & DELAMINATED CONCRETE ON TWO CORBELS - SEE DETAILS ON SHEET SF502.
2. CLEAN AND COAT STEEL BEARING PLATES AT CORBELS - SEE DETAILS ON SHEET SF502.
3. CLEAN AND COAT CORRODED STEEL BOX GIRDER - SEE DETAILS ON SHEET SF501.
4. CLEAN AND COAT CORRODED STEEL BOX GIRDER AT CONNECTION TO HELIX WALL - SEE DETAILS ON SHEET SF501.
5. REPLACE EXPANSION JOINT - SEE DETAIL 5/SF502.
6. REPLACE DETERIORATED JOINT SEALANT AT PRECAST PANEL JOINTS, COVE JOINTS AND FLOOR DRAINS.
7. CLEAN AND COAT CORRODED FLOOR DRAINS.
8. REPLACE CONCRETE POUR STRIPS AT RAMPS.
9. CLEAN AND COAT CORRODED HANDRAIL CONNECTION ON NORTH BRIDGE (SEE PHOTO BELOW).
10. REPLACE DETERIORATED TRAFFIC COATING IN AREA INDICATED THUSLY: [ ] REFER TO SPEC SECTION 07 18 16 DECK COATING SYTEM.
11. SEE SHEET SK001 FOR PHOTOS OF TYPICAL REPAIR CONDITIONS.

5 SPALLED CONCRETE AT CORNER OF CORBEL

NTS

4 CORRODED STEEL PLATES IN SLIDE BEARING ASSEMBLY

NTS

3 CORRODED HANDRAIL CONNECTION

NTS

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

HAS FILE:

PLOT DATE:

DOA DWG FILE:

OLD DOA No. :

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

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C.O.H. No.	D.O.A. No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 20-03

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TBPE Firm Registration No. 8755

STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
K. Elaine Rogers
09/10/2020

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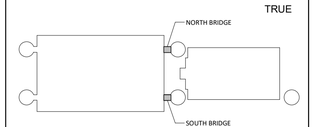
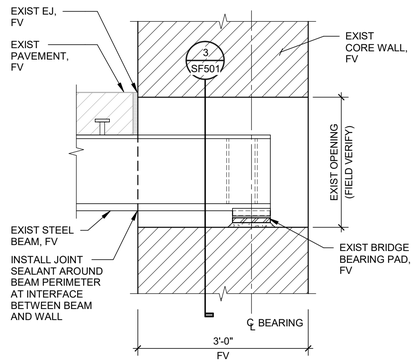


SHEET NAME: PARTIAL FRAMING PLAN - LEVEL 6

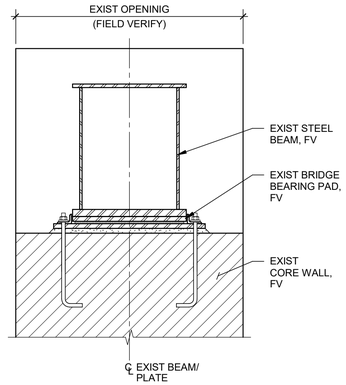
SHEET No. SF206 | SCALE: As indicated

SHEET SIZE: 22"x34" ANSI-D

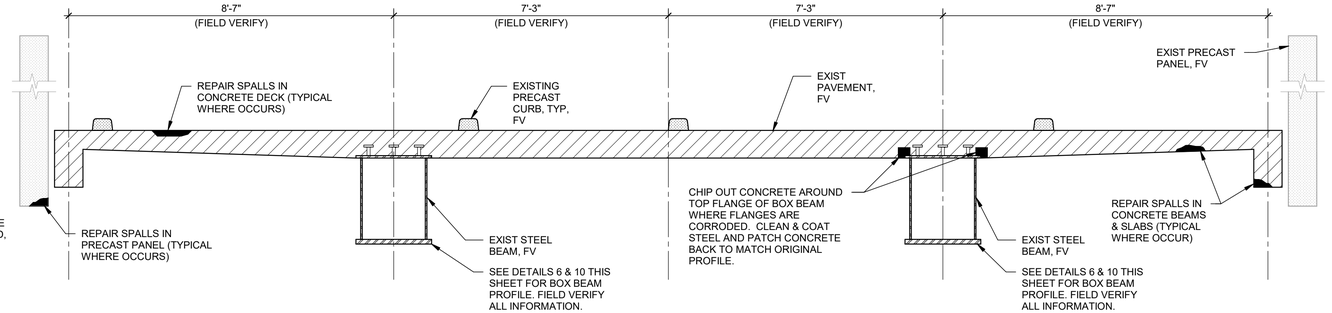
EXPOSE STEEL BEAM WHERE IT PENETRATES THE HELIX CORE WALL SO ENGINEER CAN REVIEW THE CONDITION. IF STEEL IS SOUND AND NO FURTHER REPAIR IS NEEDED, CLEAN AND COAT STEEL SURFACES BEFORE PATCHING THE WALL. INSTALL JOINT SEALANT AROUND THE BEAM PERIMATER AT INTERFACE BETWEEN BEAM AND WALL. APPLY CONCRETE PENETRATING SEALER ON THE WALL SURFACE.



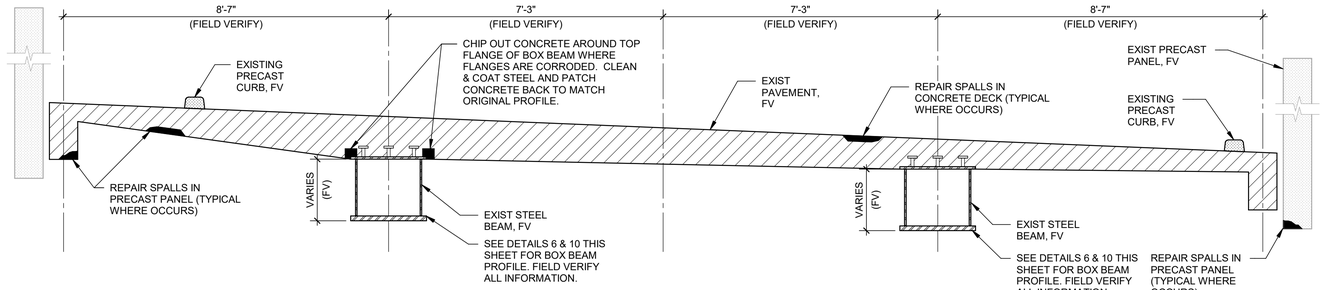
4 SECTION - AT CORE WALL
3/4" = 1'-0"



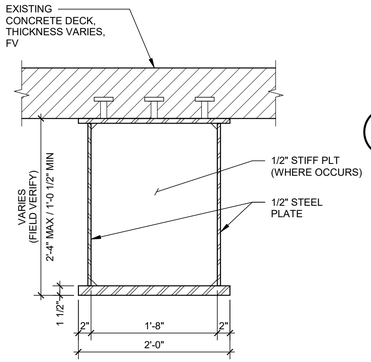
3 EXISTING BEARING PLATE
3/4" = 1'-0"



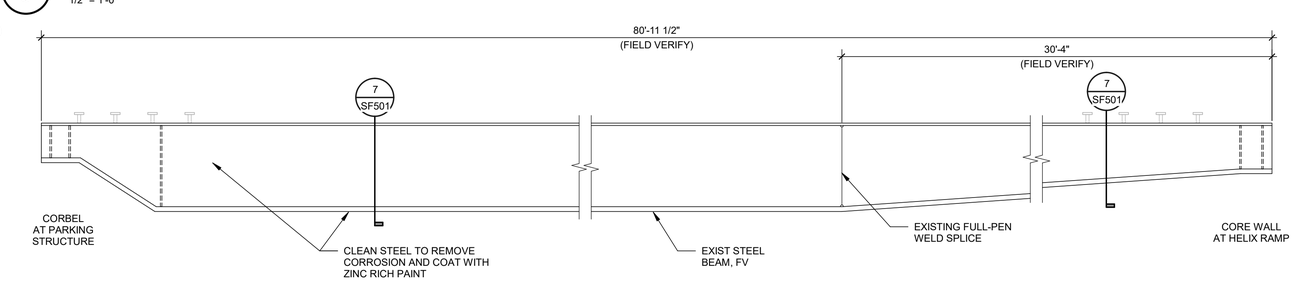
2 SECTION - AT EXISTING SPIRAL RAMP TO MAIN BUILDING BRIDGE (PARKING LEVELS 4, 5 AND 6)
1/2" = 1'-0"



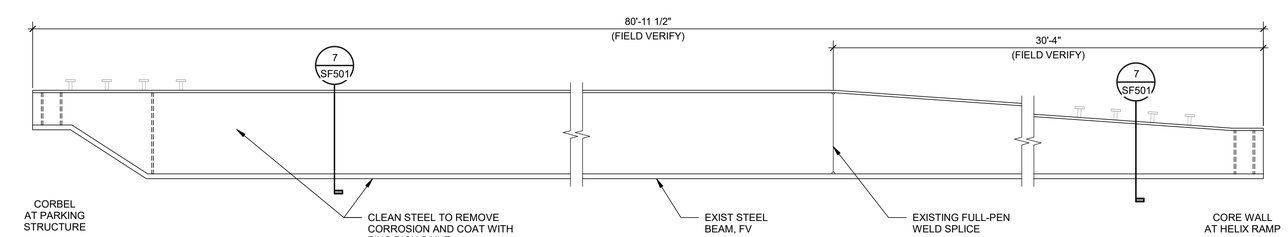
5 SECTION - AT EXISTING SPIRAL RAMP TO MAIN BUILDING BRIDGE (PARKING LEVELS 4, 5 AND 6)
1/2" = 1'-0"



7 EXISTING STEEL BOX GIRDER
1" = 1'-0"



6 ELEVATION OF EXISTING STEEL BOX GIRDER - PROFILE TYPE 1 WITH TOP FLANGE LEVEL ACROSS BRIDGE
1/2" = 1'-0"



10 ELEVATION OF EXISTING STEEL BOX GIRDER - PROFILE TYPE 2 WITH TOP FLANGE SLOPED AT HELIX END
1/2" = 1'-0"

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IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

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C.O.H. No.	D.O.A. No.

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HOUSTON, TEXAS 77079 - 713-482-2338

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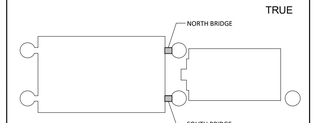
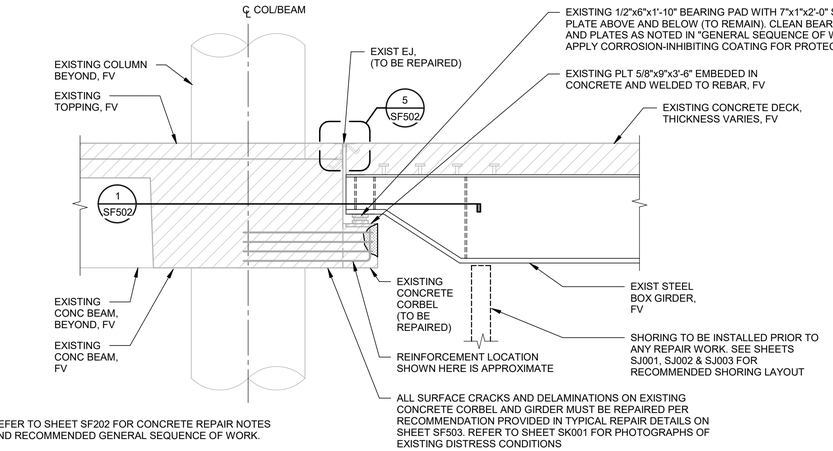


SHEET NAME: EXISTING FRAMING DETAILS

SHEET No. SF501 SCALE: As indicated

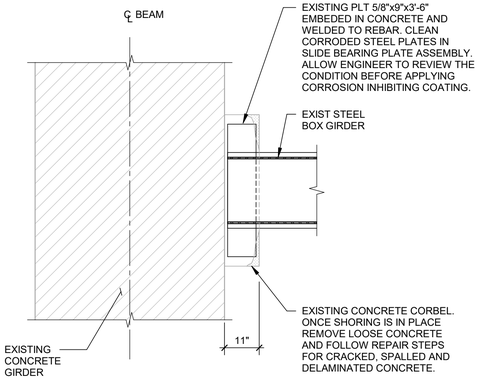
SHEET SIZE: 22"x34" ANSI-D



NOTE:
1. REFER TO SHEET SF202 FOR CONCRETE REPAIR NOTES AND RECOMMENDED GENERAL SEQUENCE OF WORK.

3 SECTION - AT EXISTING BOX BEAM & CONCRETE CORBEL

1/2" = 1'-0"



1 EXISTING CONCRETE CORBEL PLAN DETAIL

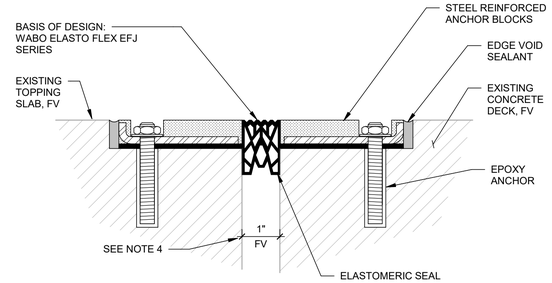
1/2" = 1'-0"

7 EXISTING CORBEL - REBAR IDENTIFIED DURING GPR TESTING (Approximate Locations)

NTS

11 EXISTING CORBEL - REBAR IDENTIFIED DURING GPR TESTING (Approximate Locations)

NTS



INSTALLATION NOTES:

1. REMOVE AND REPAIR ALL UNSOUND CONCRETE IN AND AROUND BLOCKOUT. ALL SPALLS MUST BE REPAIRED WITH COMPATIBLE PATCHING MATERIALS.
2. PREPARE SUBSTRATE BY SAND BLASTING. BLOCKOUT MUST BE CLEAN AND DRY PRIOR TO INSTALLATION.
3. INSTALL EXPANSION JOINT SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILED INSTALLATION GUIDE.
4. CONTRACTOR AND MANUFACTURER'S REPRESENTATIVE SHALL JOINTLY FIELD VERIFY INSTALLATION WIDTH (BASED ON TEMPERATURE CONDITIONS) TO SELECT APPROPRIATE E.J. SIZE.

5 EXPANSION JOINT DETAIL

6" = 1'-0"

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A. No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 20-03
PROJECT STATUS: CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
1	ISSUED FOR 90% REVIEW	04/17/2020	
2	ISSUED FOR 95% REVIEW	07/07/2020	
3	ISSUED FOR 100% REVIEW	07/31/2020	
4	ISSUED FOR PERMIT	09/10/2020	HRSE

DESIGNER:	ER
DRAWN BY:	HT
CHECKED BY:	ER
ISSUE DATE:	09/10/2020
APPROVED BY:	ER
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
IFP
Issued For Permit

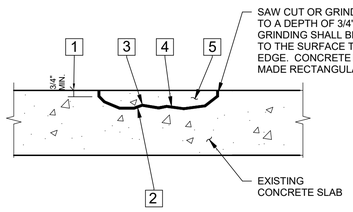
Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755
STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
K. Elaine Rogers
09/10/2020

North
TRUE
NORTH BRIDGE
SOUTH BRIDGE

SHEET NAME: REPAIR DETAILS
SHEET No. SF502 **SCALE:** As indicated

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt
HAS FILE:
PLOT DATE:
DOA DWG FILE:
OLD DOA No. :



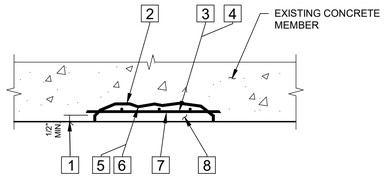
1. REPAIR AREA SHOULD NOT BE LESS THAN 3/4" IN DEPTH.
2. SUBSTRATE SHALL BE CLEAN, SOUND AND LAITANCE-FREE PRIOR TO REPAIRING.
3. ROUGHEN CONCRETE SURFACE TO MINIMUM CSP 6.
4. SUBSTRATE SHOULD BE SATURATED DRY (SSD) WITH NO STANDING WATER DURING APPLICATION. APPLY SCRUB COAT TO THE SUBSTRATE, FILLING ALL PORES AND VOIDS.
5. WHILE SCRUB COAT IS STILL WET APPLY SIKATOP 122 PLUS.

NOTE: IF REPAIR AREA IS TOO LARGE TO FILL WHILE SCRUB COAT IS STILL WET, USE SIKA ARMATEC 110 EPOCEM IN LIEU OF THE SCRUB COAT.

FOR APPLICATIONS GREATER THAN 1" IN DEPTH, 3/8" PEA GRAVEL MAY BE USED (42# OF GRAVEL PER 0.5 CU. FT. OF SIKATOP 122 PLUS).

4 REPAIR AT CONCRETE SPALLS HORIZONTAL SURFACES

3/4" = 1'-0"

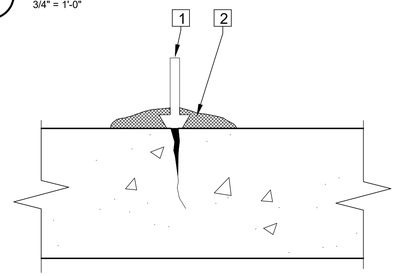


1. PERIMETER SAW CUT OR GRINDING SHOULD NOT BE LESS THAN 1/2" IN DEPTH.
2. SUBSTRATE SHALL BE CLEAN, SOUND AND LAITANCE-FREE PRIOR TO REPAIRING.
3. PROVIDE A MINIMUM CLEARANCE OF 3/4" AROUND THE EXPOSED REINFORCEMENT. PROTECT EXISTING REINFORCEMENT FROM DAMAGE DURING REPAIRS. WHERE REINFORCEMENT THAT IS EXPOSED DURING SURFACE PREPARATION IS FOUND TO BE SEVERELY CORRODED OR HAS LOST 10% OR MORE OF ITS CROSS SECTIONAL AREA, SUPPLEMENTARY REINFORCEMENT MAY BE REQUIRED. REPORT CONDITION TO ENGINEER FOR REVIEW AND DESIGN OF SUPPLEMENTARY REINFORCEMENT.
4. REINFORCING STEEL SHOULD BE THOROUGHLY CLEANED BY BLAST CLEANING.
5. ROUGHEN CONCRETE SURFACE TO MINIMUM CSP 6.
6. SUBSTRATE SHOULD BE SATURATED DRY (SSD) WITH NO STANDING WATER DURING APPLICATION. APPLY SCRUB COAT TO THE SUBSTRATE, FILLING ALL PORES AND VOIDS.
7. APPLY ARMATEC 110 EPOCEM TO ALL STEEL SURFACES.
8. WHILE SCRUB COAT AND BONDING AGENT ARE STILL WET, APPLY SIKATOP 123 PLUS.
9. SEE DETAIL 2/SF503 FOR ADDITIONAL REQUIREMENTS.

FOR APPLICATIONS GREATER THAN 1-1/2" IN DEPTH, APPLY SIKATOP 123 PLUS IN LIFTS. SCORE THE TOP SURFACE OF EACH LIFT TO PRODUCE A ROUGHENED SURFACE FOR THE NEXT LIFT. ALLOW PRECEDING LIFT TO REACH FINAL SET. REPEAT FROM STEP 3.

3 REPAIR AT EXPOSED REINFORCING AND SPALLS VERTICAL OR OVERHEAD SURFACES

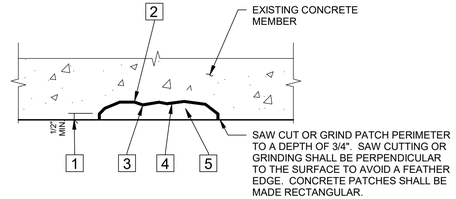
3/4" = 1'-0"



1. SET PORTING DEVICES OVER CRACKS.
2. PLACE MIXED SIKADUR 31, HI-MOD GEL EPOXY RESIN ADHESIVE OVER CRACKS AND AROUND EACH INJECTION PORT A MINIMUM OF 1" WIDE BY A 1/4" THICK.
3. ALLOW SUFFICIENT TIME FOR EPOXY RESIN ADHESIVE CAP SEAL TO SET BEFORE INJECTING.
4. WHEN THE CAP SEAL HAS CURED, INJECT SIKADUR 52 WITH STEADY PRESSURE.
5. USE AUTOMATED INJECTION EQUIPMENT OR MANUAL METHOD.
6. AFTER INJECTION IS COMPLETE, REMOVE EPOXY RESIN AND PORTS FLUSH WITH CONCRETE SURFACE.

7 CRACK REPAIR - EPOXY INJECTION FOR CRACKS 1/32" TO 1/4" WIDE

3/4" = 1'-0"



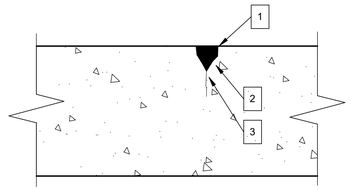
1. REPAIR AREA SHOULD NOT BE LESS THAN 1/8" IN DEPTH.
2. SUBSTRATE SHALL BE CLEAN, SOUND AND LAITANCE-FREE PRIOR TO REPAIRING.
3. ROUGHEN CONCRETE SURFACE TO MINIMUM CSP 6.
4. SUBSTRATE SHOULD BE SATURATED DRY (SSD) WITH NO STANDING WATER DURING APPLICATION. APPLY SCRUB COAT TO THE SUBSTRATE, FILLING ALL PORES AND VOIDS.
5. WHILE SCRUB COAT (OR EPOXY BONDING AGENT) IS STILL WET APPLY SIKATOP 123 PLUS.

NOTE: IF REPAIR AREA IS TOO LARGE TO FILL WHILE SCRUB COAT IS STILL WET, USE SIKA ARMATEC 110 EPOCEM IN LIEU OF THE SCRUB COAT.

FOR APPLICATIONS GREATER THAN 1-1/2" IN DEPTH, APPLY SIKATOP 123 PLUS IN LIFTS. SCORE THE TOP SURFACE OF EACH LIFT TO PRODUCE A ROUGHENED SURFACE FOR THE NEXT LIFT. ALLOW PRECEDING LIFT TO REACH FINAL SET. REPEAT FROM STEP 4.

2 REPAIR SPALLS VERTICAL OR OVERHEAD SURFACES

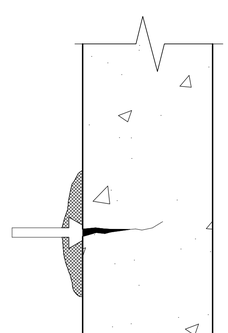
3/4" = 1'-0"



1. USE A GRINDER TO CREATE A V-SHAPED GROOVE, WITH THE CRACK CENTERED IN THE GROOVE. GROOVE SHALL BE APPROXIMATELY 3/8" DEEP.
2. AFTER GROOVING, ENSURE SUBSTRATES ARE CLEAN AND SOUND. REMOVE ANY CONTAMINANTS, INCLUDING LAITANCE, OIL, DUST, DEBRIS, OR OTHER FOREIGN PARTICLES.
3. FILL THE GOOVE USING A SELF-LEVELING, TWO-COMPONENT, VERY RAPID CURE, SILICONE SEALANT (SIKAFLEX-2c NS TG, OR EQUAL).
4. PRODUCT IS DESIGNED TO OBTAIN ADHESION WITHOUT THE USE OF A PRIMER, HOWEVER, BEST RESULTS ARE OBTAINED WHEN HORIZONTAL JOINTS ARE PRIMED. TEST BY APPLYING THE SEALANT AND PRIMER SEALANT COMBINATION TO CONFIRM RESULTS.
5. MINIMIM DEPTH OF SEALANT SHALL BE 1/4 INCH AND THE MAXIMUM DEPTH SHALL BE 1/2 INCH.
6. TO CONTROL JOINT DEPTH, USE CLOSED CELL POLYETHYLENE BACKER ROD. IF JOINT DEPTH DOES NOT ALLOW FOR BACKER ROD, USE POLYETHYLENE BOND BREAKER TAPE TO PREVENT THREE-SIDED ADHESION.

6 REPAIR FOR CRACKS 1/4" to 1/2" WIDE HORIZONTAL SURFACES

3/4" = 1'-0"



1. PERIMETER SAW CUT OR GRINDING SHOULD NOT BE LESS THAN 1/2" IN DEPTH.
2. SUBSTRATE SHALL BE CLEAN, SOUND AND LAITANCE-FREE PRIOR TO REPAIRING.
3. PROVIDE A MINIMUM CLEARANCE OF 3/4" AROUND THE EXPOSED REINFORCEMENT. PROTECT EXISTING REINFORCEMENT FROM DAMAGE DURING REPAIRS. WHERE REINFORCEMENT THAT IS EXPOSED DURING SURFACE PREPARATION IS FOUND TO BE SEVERELY CORRODED OR HAS LOST 10% OR MORE OF ITS CROSS SECTIONAL AREA, SUPPLEMENTARY REINFORCEMENT MAY BE REQUIRED. REPORT CONDITION TO ENGINEER FOR REVIEW AND DESIGN OF SUPPLEMENTARY REINFORCEMENT.
4. REINFORCING STEEL SHOULD BE THOROUGHLY CLEANED BY BLAST CLEANING.
5. ROUGHEN CONCRETE SURFACE TO MINIMUM CSP 6.
6. SUBSTRATE SHOULD BE SATURATED DRY (SSD) WITH NO STANDING WATER DURING APPLICATION. APPLY SCRUB COAT TO THE SUBSTRATE, FILLING ALL PORES AND VOIDS.
7. APPLY ARMATEC 110 EPOCEM TO ALL STEEL SURFACES.
8. WHILE SCRUB COAT AND BONDING AGENT ARE STILL WET, APPLY SIKATOP 122 PLUS.
9. SEE DETAIL 4/SF503 FOR ADDITIONAL REQUIREMENTS

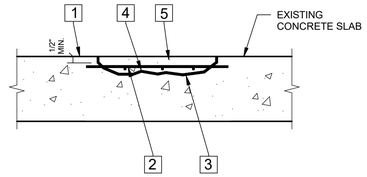
FOR APPLICATIONS GREATER THAN 1" IN DEPTH,3/8" PEA GRAVEL MAY BE USED (42#OF GRAVEL PER 0.5 CU. FT. OF SIKATOP 122 PLUS).

5 REPAIR AT CONCRETE SPALL WITH EXPOSED REINFORCING HORIZONTAL SURFACES

3/4" = 1'-0"

1 CRACK REPAIR - EPOXY INJECTION FOR CRACKS 1/32" TO 1/4" WIDE VERTICAL OR OVERHEAD SURFACES

3/4" = 1'-0"



1. PERIMETER SAW CUT OR GRINDING SHOULD NOT BE LESS THAN 1/2" IN DEPTH.
2. SUBSTRATE SHALL BE CLEAN, SOUND AND LAITANCE-FREE PRIOR TO REPAIRING.
3. PROVIDE A MINIMUM CLEARANCE OF 3/4" AROUND THE EXPOSED REINFORCEMENT. PROTECT EXISTING REINFORCEMENT FROM DAMAGE DURING REPAIRS. WHERE REINFORCEMENT THAT IS EXPOSED DURING SURFACE PREPARATION IS FOUND TO BE SEVERELY CORRODED OR HAS LOST 10% OR MORE OF ITS CROSS SECTIONAL AREA, SUPPLEMENTARY REINFORCEMENT MAY BE REQUIRED. REPORT CONDITION TO ENGINEER FOR REVIEW AND DESIGN OF SUPPLEMENTARY REINFORCEMENT.
4. REINFORCING STEEL SHOULD BE THOROUGHLY CLEANED BY BLAST CLEANING.
5. ROUGHEN CONCRETE SURFACE TO MINIMUM CSP 6.
6. SUBSTRATE SHOULD BE SATURATED DRY (SSD) WITH NO STANDING WATER DURING APPLICATION. APPLY SCRUB COAT TO THE SUBSTRATE, FILLING ALL PORES AND VOIDS.
7. APPLY ARMATEC 110 EPOCEM TO ALL STEEL SURFACES.
8. WHILE SCRUB COAT AND BONDING AGENT ARE STILL WET, APPLY SIKATOP 122 PLUS.
9. SEE DETAIL 4/SF503 FOR ADDITIONAL REQUIREMENTS

FOR APPLICATIONS GREATER THAN 1" IN DEPTH, 3/8" PEA GRAVEL MAY BE USED (42# OF GRAVEL PER 0.5 CU. FT. OF SIKATOP 122 PLUS).

TYPICAL CONCRETE REPAIR NOTES:

1. FIELD VERIFY EXTENT OF CRACK AND CONCRETE SPALLING.
2. REFER TO DETAILS THIS SHEET FOR TYPICAL REPAIR TYPES AND GENERAL PROCEDURES FOR REPAIR.
3. REFER TO MANUFACTURER'S SPECIFICATIONS FOR DETAILED INSTRUCTIONS FOR SURFACE PREPARATION AND PROPER STORAGE, HANDLING AND APPLICATION OF THEIR PRODUCTS.
4. IF ALTERNATE PRODUCT TYPES ARE NEEDED BASED ON CONDITIONS IN THE FIELD, THEY SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE DESIGN TEAM PRIOR TO USE.

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A. No.

MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 20-03
PROJECT STATUS: CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
1	ISSUED FOR 90% REVIEW	04/17/2020	
2	ISSUED FOR 95% REVIEW	07/07/2020	
3	ISSUED FOR 100% REVIEW	07/31/2020	
4	ISSUED FOR PERMIT	09/10/2020	HRSE

DESIGNER:	ER
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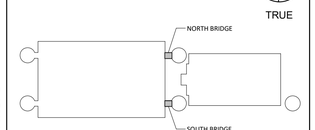
DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category
IFP
Issued For Permit

Henderson Rogers
Structural Engineers, LLC
TBPE Firm Registration No. 8755

North
TRUE



SHEET NAME: REPAIR DETAILS
SHEET No. SF503 **SCALE:** 3/4" = 1'-0"

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt
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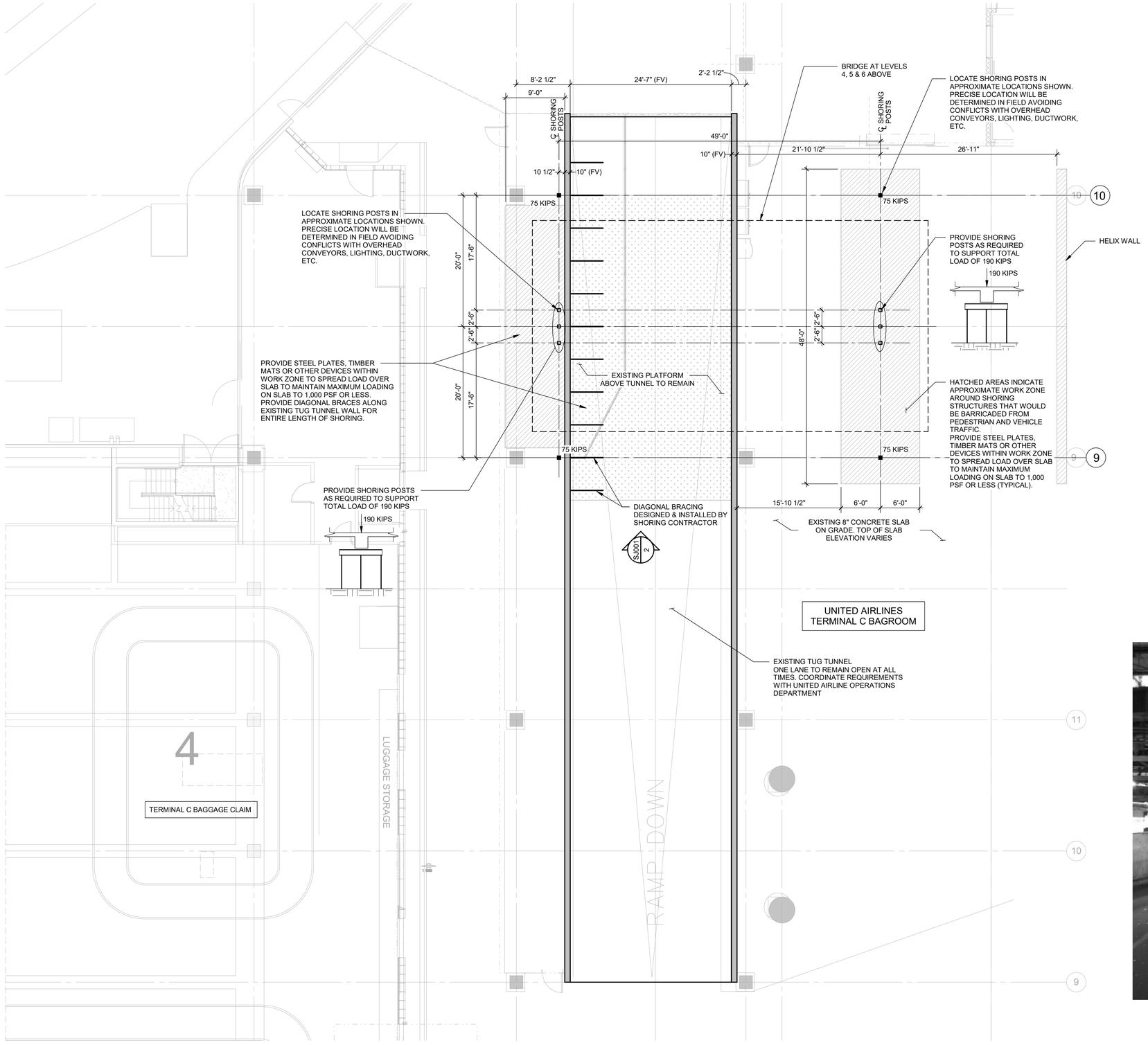
DOA DWG FILE:
OLD DOA No. :



1 SHORING PLAN AT LEVEL 1 - NORTH
1/8" = 1'-0"

NOTE: SHORING POSTS SHALL BE DESIGNED BY CONTRACTOR'S ENGINEER FOR TOTAL UNFACTORED LOADS INDICATED. SHORING DRAWINGS SHALL BE SUBMITTED TO OWNER AND DESIGN TEAM FOR REVIEW.

2 NORTH TUG TUNNEL
NO SCALE

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
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Structural Engineers, LLC
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STATE OF TEXAS
K. ELAINE ROGERS
65566
LICENSED PROFESSIONAL ENGINEER
09/10/2020

North
TRUE
NORTH BRIDGE
SOUTH BRIDGE

SHEET NAME: SHORING PLAN AT LEVEL 1 - NORTH
SHEET No. SJ001
SCALE: As indicated

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt
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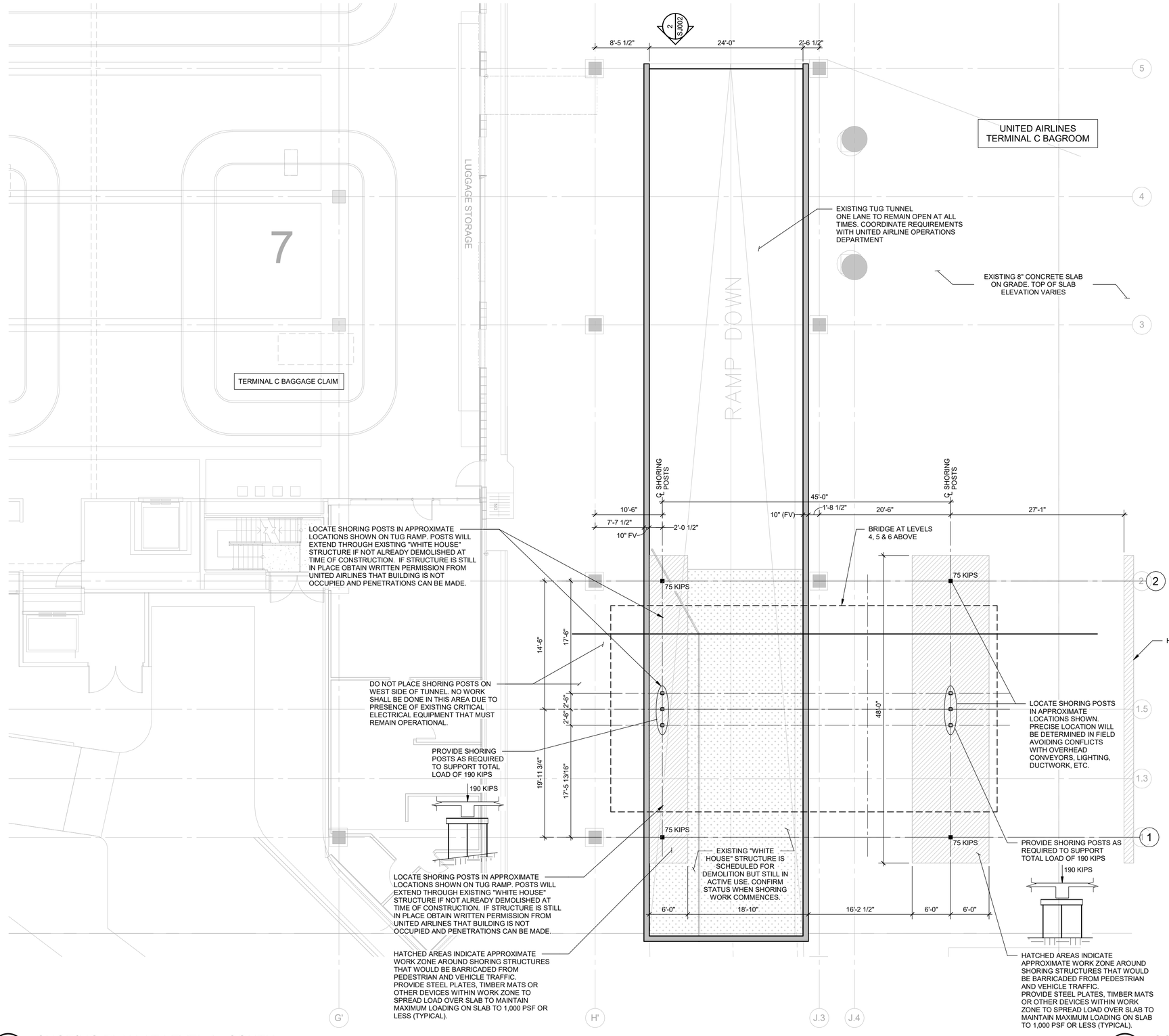

NOTE: SHORING POSTS SHALL BE DESIGNED BY CONTRACTOR'S ENGINEER FOR TOTAL UNFACTORED LOADS INDICATED. SHORING DRAWINGS SHALL BE SUBMITTED TO OWNER AND DESIGN TEAM FOR REVIEW.

1 SHORING PLAN AT LEVEL 1 - SOUTH
1/8" = 1'-0"

2 SOUTH TUG TUNNEL
NO SCALE

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

IAH BRIDGE BEARINGS REPAIRS AT TERMINAL C

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A. No.

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3	ISSUED FOR 100% REVIEW	07/31/2020	
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Structural Engineers, LLC
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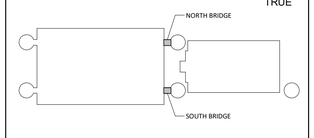
09/10/2020

North
TRUE



SHEET NAME: SHORING PLAN AT LEVEL 1 - SOUTH
SHEET No. SJ002
SCALE: As indicated

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt
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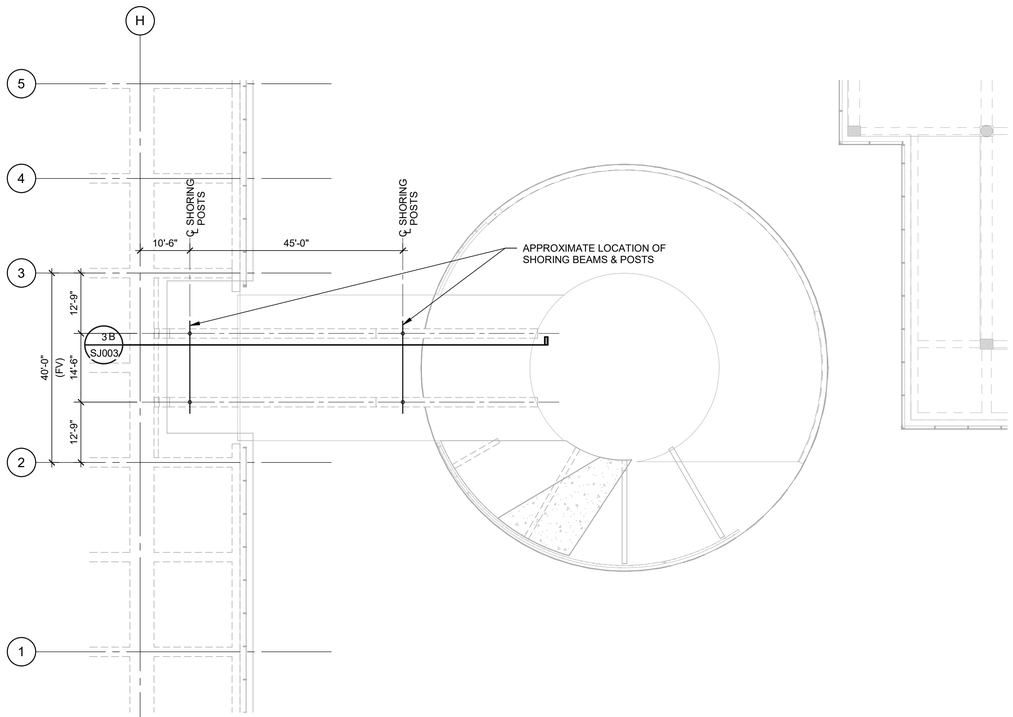
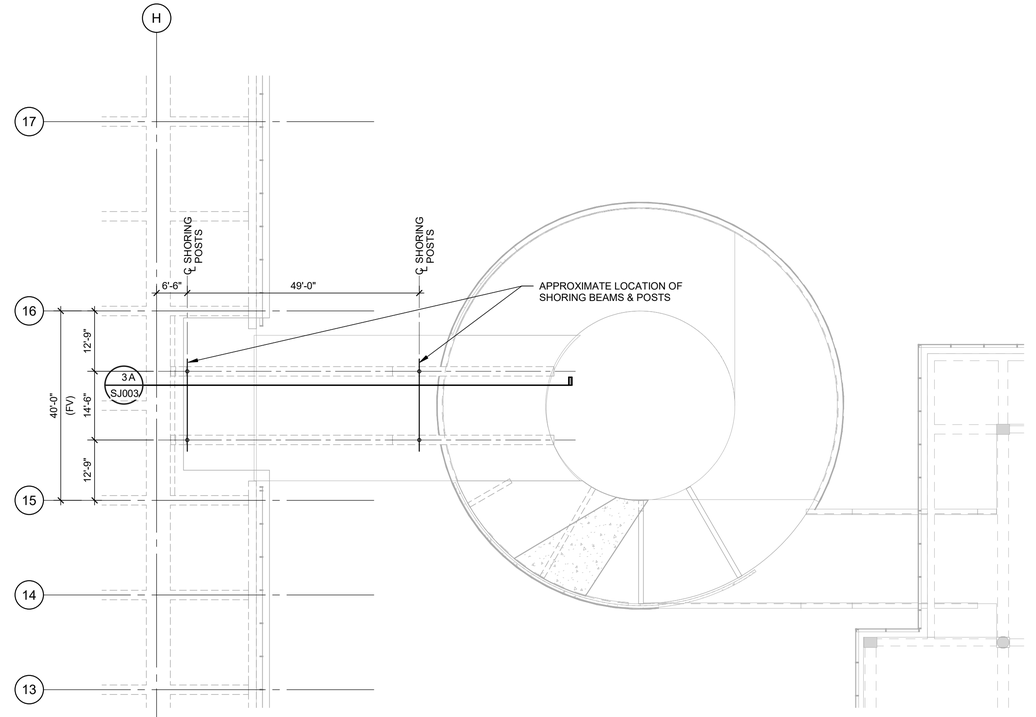
OLD DOA No. :



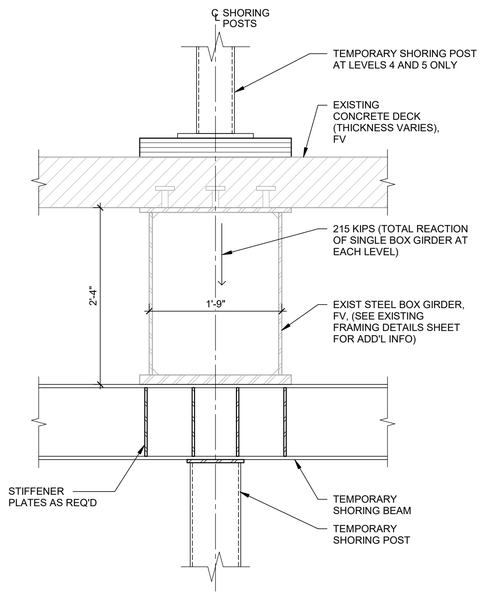
2 SOUTH SHORING PLAN (BELOW LEVELS 4, 5 & 6) — PHASE 2

1/16" = 1'-0"



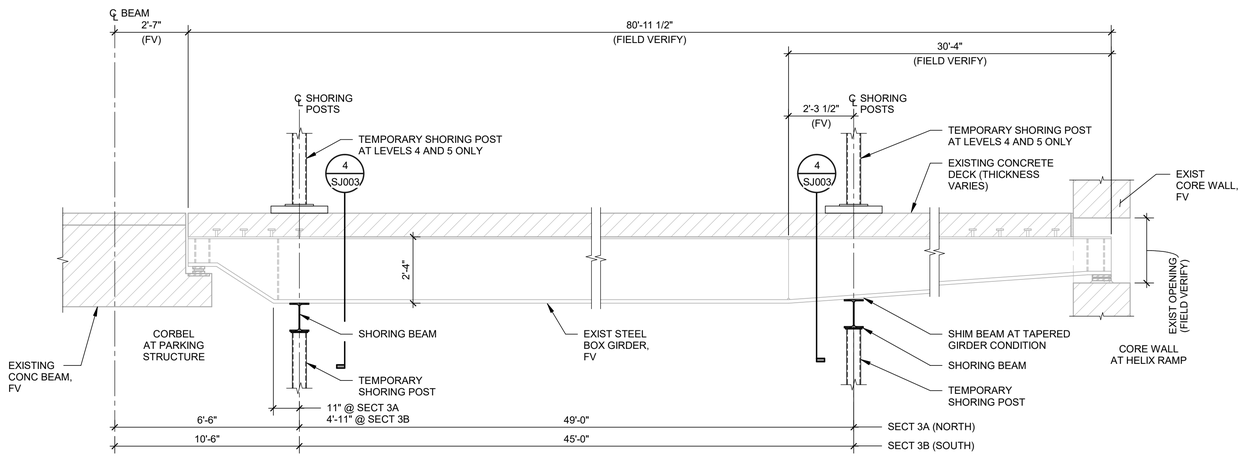
1 NORTH SHORING PLAN (BELOW LEVELS 4, 5 & 6) — PHASE 1

1/16" = 1'-0"



4 SECTION AT TEMPORARY SHORING POST

1" = 1'-0"



NOTES:

1. SHORE POSTS ABOVE AND BELOW STEEL BOX GIRDER SHALL BE POSITIONED SO THEY ARE ACCURATELY ALIGNED.
2. SHORING POSTS TO REMAIN IN PLACE UNTIL CORBELS ARE REPAIRED.
3. SEE SHEET SF003 FOR ADDITIONAL SHORING NOTES.

3 ELEVATION OF EXISTING STEEL BOX GIRDER AT SHORING POST

3/8" = 1'-0"

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

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MWA ARCHITECTS
11767 KATY FREEWAY SUITE 430
HOUSTON, TEXAS 77079 - 713-482-2338

DESIGNER PROJECT No.: 20-03

PROJECT STATUS: CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY
1	ISSUED FOR 60% REVIEW	03/06/2020	
2	ISSUED FOR 90% REVIEW	04/17/2020	
3	ISSUED FOR 95% REVIEW	07/07/2020	
4	ISSUED FOR 100% REVIEW	07/31/2020	
5	ISSUED FOR PERMIT	09/10/2020	HRSE

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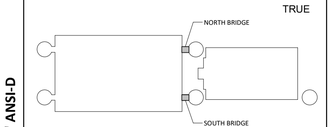


SHEET NAME: TYPICAL SHORING PLAN

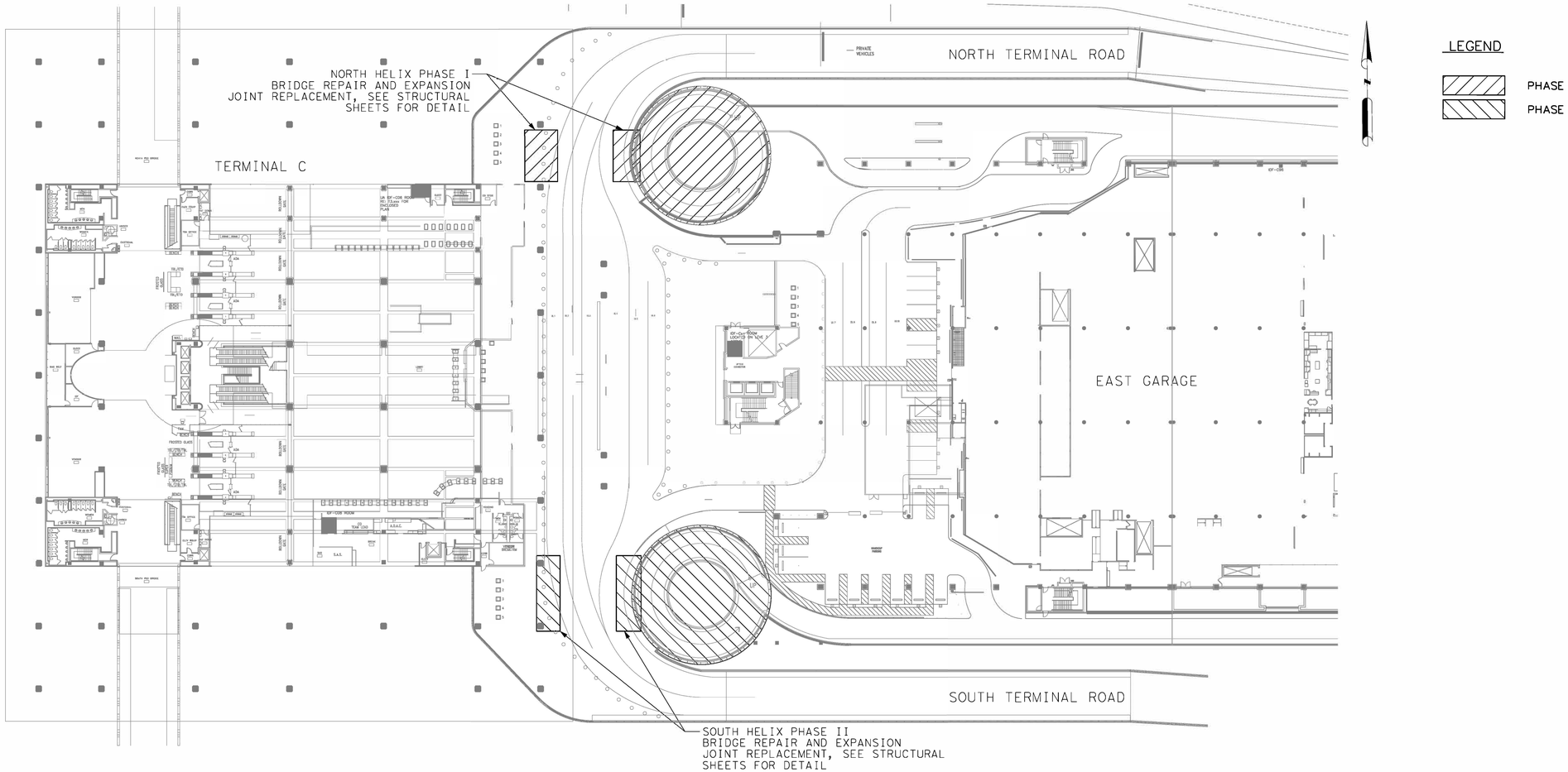
SHEET No. SJ003 **SCALE:** As indicated

SHEET SIZE: 22"x34" ANSI-D

FILE PATH: G:\Users\harry.torres\Documents\Revit Local 2019\1320001_IAH C Garage Bridge Repair_R19_htorresB3C6Z.rvt

HAS FILE:

PLOT DATE:
DOA DWG FILE:
OLD DOA No. :



LEGEND

PHASE I

PHASE II

PHASING NOTES:

1. THE CONTRACTOR SHALL PROVIDE SUFFICIENT MEN AND EQUIPMENT TO COMPLETE WORK IN THE TIME ALLOTTED FOR EACH PHASE. NO WORK SHALL COMMENCE UNTIL PROPER NOTIFICATION HAS BEEN GIVEN TO THE AIRPORT.
2. THE CONTRACTOR SHALL GIVE CONSTANT ATTENTION TO THE WORK TO FACILITATE THE PROGRESS THEREOF AND SHALL COOPERATE WITH THE RESIDENT ENGINEER AND AIRPORT PERSONNEL.
3. ANY SITUATION THAT, IN THE OPINION OF THE AIRPORT PERSONNEL, CONSTITUTES A HAZARD TO OPERATIONS OF THE AIRPORT WILL IMMEDIATELY CAUSE WORK AND ACTIVITY TO CEASE UNTIL THE SITUATION IS RECTIFIED. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED IF THE CONTRACTOR NEEDS TO ADJUST OR CHANGE HIS WORK SCHEDULE TO ACCOMMODATE AIRPORT OPERATIONS.
4. PHASING IS SUBJECT TO CHANGE BASED ON AIRLINE/AIRPORT OPERATIONS AND OTHER CONSTRUCTION PROJECTS AT THE AIRPORT.
5. CONTRACTOR SHALL STAY WITHIN THE AREA OF LIMITS OF WORK.
6. CONTRACTOR MUST PROVIDE TEMPORARY CHAIN LINK FENCE WITH GREEN FABRIC TO PREVENT VEHICLES/ PEDESTRIANS FROM ENTERING CONSTRUCTION AREA AT EACH PHASE.
7. UP TO TWO CONTRACTOR VEHICLES WILL BE ALLOWED TO PARK WITHIN THE WORK AREAS. CONTRACTOR PERSONAL VEHICLE PARKING WILL NOT BE ALLOWED WITHIN THE CONSTRUCTION AREAS. PERSONAL VEHICLES SHALL BE PARKED AT CONTRACTOR STAGING AREA.
8. CONTRACTOR MAY NOT PARK OR STORE VEHICLES WITHIN 10 FEET OF THE SECURITY FENCE. ACCESS TO EXISTING GATES AND DRIVE AISLES MUST BE MAINTAINED AT ALL TIMES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DUST CONTROL AND TAKE APPROPRIATE MEASURES AS NECESSARY OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
10. THE CONTRACTOR SHALL CONTINUOUSLY CLEAN UP DURING EACH PHASE OF THE PROJECT AND SHALL PERFORM FINAL CLEANUP WORK PRIOR TO A FINAL INSPECTION. THE CONTRACTOR SHALL SLEEP ON A DAILY BASIS AS NECESSARY OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL ENSURE THAT ALL FOREIGN OBJECT DEBRIS (FOD) DEPOSITED BY AUTOMOBILE OR CONSTRUCTION EQUIPMENT OR BY WINDBLOWN DEBRIS OR MATERIALS ONTO THOSE ACTIVE AREAS IS IMMEDIATELY CLEANED UP. IT IS IMPERATIVE THAT NO DAMAGE BE DONE TO ANY AIRCRAFT DUE TO FOD. ANY DAMAGE TO AIRCRAFT ATTRIBUTABLE TO FOD FROM THE CONSTRUCTION AREAS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE

FILE PATH:

OLD DOA No. :

DOA DWG FILE:

PLOT DATE: 14 May 2020 5:09:35 PM

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

BRIDGE BEARING REPAIR

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

SP ENGINEERING,INC

4418 Bluebonnet Dr., Suite 406
Stafford, Texas 77477
832.867.2522
TBPE Registration Number: F-11028

DESIGNER PROJECT No.:	19-21
PROJECT STATUS:	CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY

DESIGNER:	
DRAWN BY:	
CHECKED BY:	
ISSUE DATE:	
APPROVED BY:	
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category

AFR

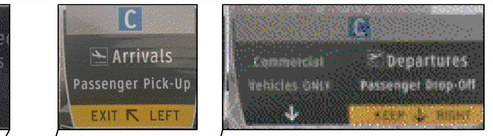
ISSUED FOR REVIEW

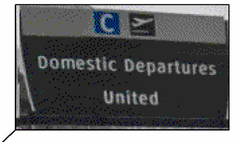
STATE OF TEXAS
SHAUKAT KHAN
90195
LICENSED
PROFESSIONAL ENGINEER

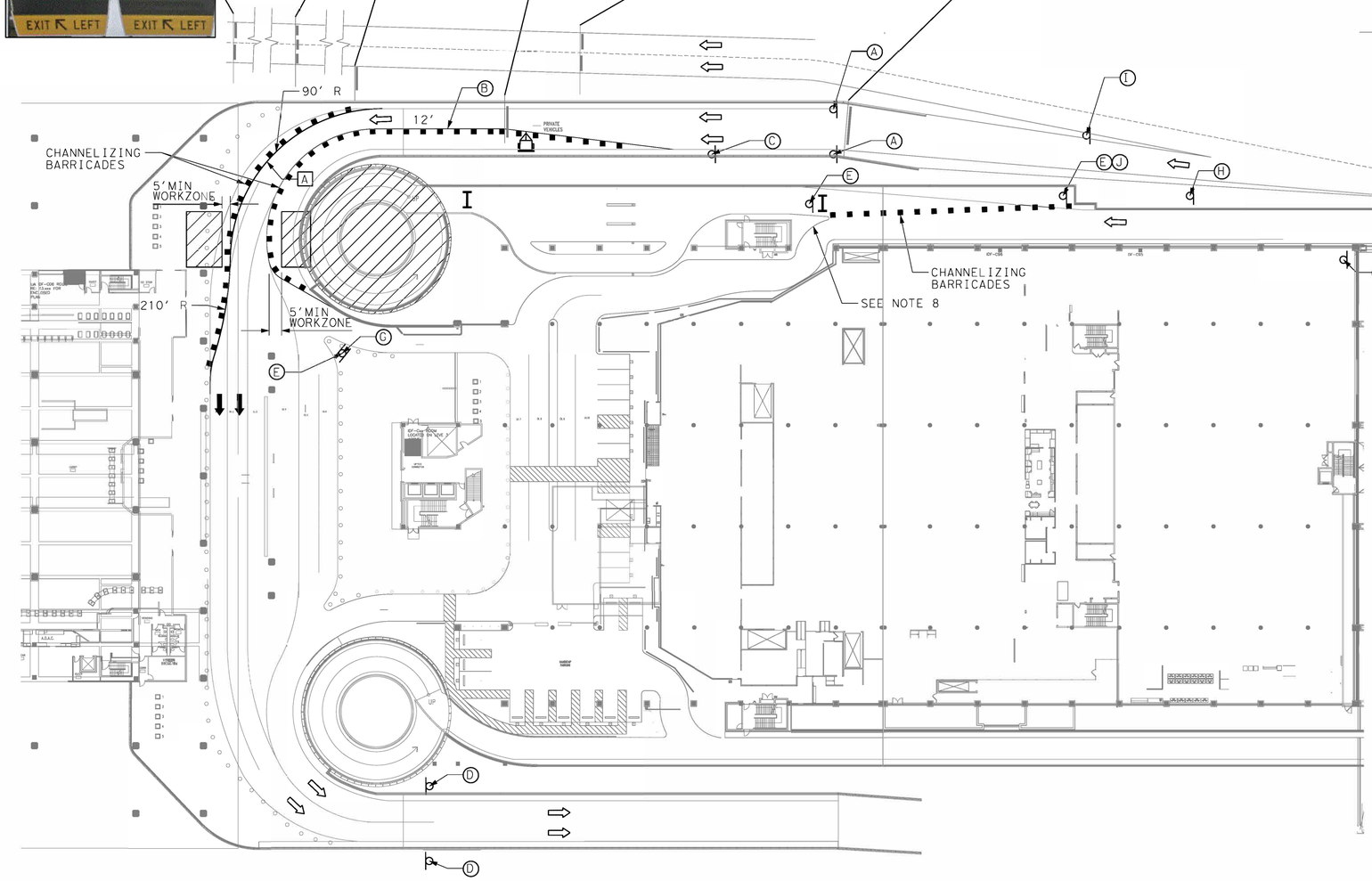
Shaukat Khan 9/08/20

SHEET SIZE: 22"x34" ANSI-D

SHEET NAME:	TRAFFIC CONTROL PLAN OVERALL LAYOUT PHASING PLAN (TCP-01)
SHEET No.	XT001
SCALE:	NTS







LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- [A] WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
- [B] WORKZONE PAVEMENT MARKING REMOVE 4" (Y)(SLD)
- CHANNELIZING BARRIER
- TEMPORARY FENCE

SEE NOTE 8

SEE NOTE 7

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM
7. CONTRACTOR RESPONSIBILITY TO COVER SIGN AND OVERHEAD SIGN FOR "PARKING GARAGE C" SIGN. SIGN COVERING SHALL BE COORDINATED WITH HAS WAYFINDING AND COVERING MATERIAL SHOULD BE APPROVED BY HAS WAYFINDING PRIOR TO INSTALLATION.

TERMINAL C DEPARTURE LEVEL 2
NORTH HELIX PHASE I

NORTH BRIDGE REPAIR

FILE PATH:

PLOT DATE: 14 May 2020 5:09:35 PM

OLD DOA No.:
DOA DWG FILE:

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832.867.2522
TBPE Registration Number: F-11028

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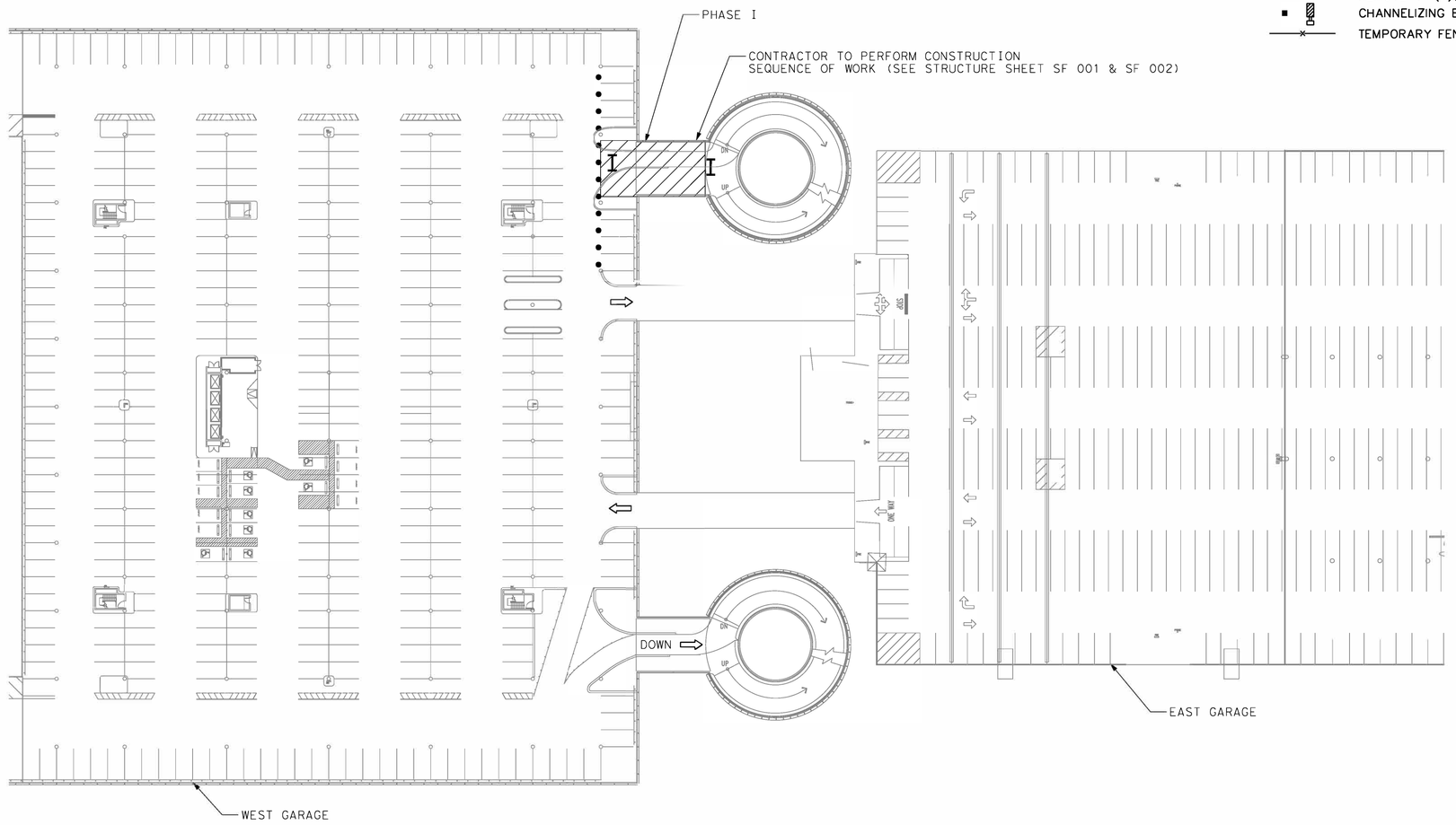
STATE OF TEXAS
SHAUKAT KHAN
90195
LICENSED PROFESSIONAL ENGINEER
9/08/20

SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: TRAFFIC CONTROL PLAN
TERMINAL C DEPARTURE LEVEL 2
(TCP-02)

SHEET No.	SCALE:
XT102	NTS



LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- [A] WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
- [B] WORKZONE PAVEMENT MARKING REMOVE 4" (Y)(SLD)
- CHANNELIZING BARRIER
- TEMPORARY FENCE

PARKING GARAGE LEVEL 4
PHASE I

NORTH BRIDGE REPAIR

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. NO WORK PERFORMED IN LEVEL 3.
4. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
5. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM
6. CONTRACTOR RESPONSIBILITY TO COORDINATE WITH PARKING MANAGEMENT TO INSTALL ADDITIONAL SIGNAGE ON WEST ENTRY AREA AND LEVEL 4 FOR VALET PARKING
7. CONTRACTOR RESPONSIBLE TO PROVIDE WAYFINDING WITHIN GARAGE TO ACCESS LEVEL 5 & 6

HOUSTON AIRPORTS

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HOUSTON, TX 77032

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C.O.H. No.	D.O.A No.

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STATE OF TEXAS — SHAUKAT KHAN — 90195 — LICENSED PROFESSIONAL ENGINEER
Shaukat Khan 9/08/20

SHEET NAME: TRAFFIC CONTROL PLAN PARKING GARAGE LEVEL 4 (TCP-03)

SHEET No.	SCALE:
XT104	NTS

SHEET SIZE: 22"x34" ANSI-D

FILE PATH:
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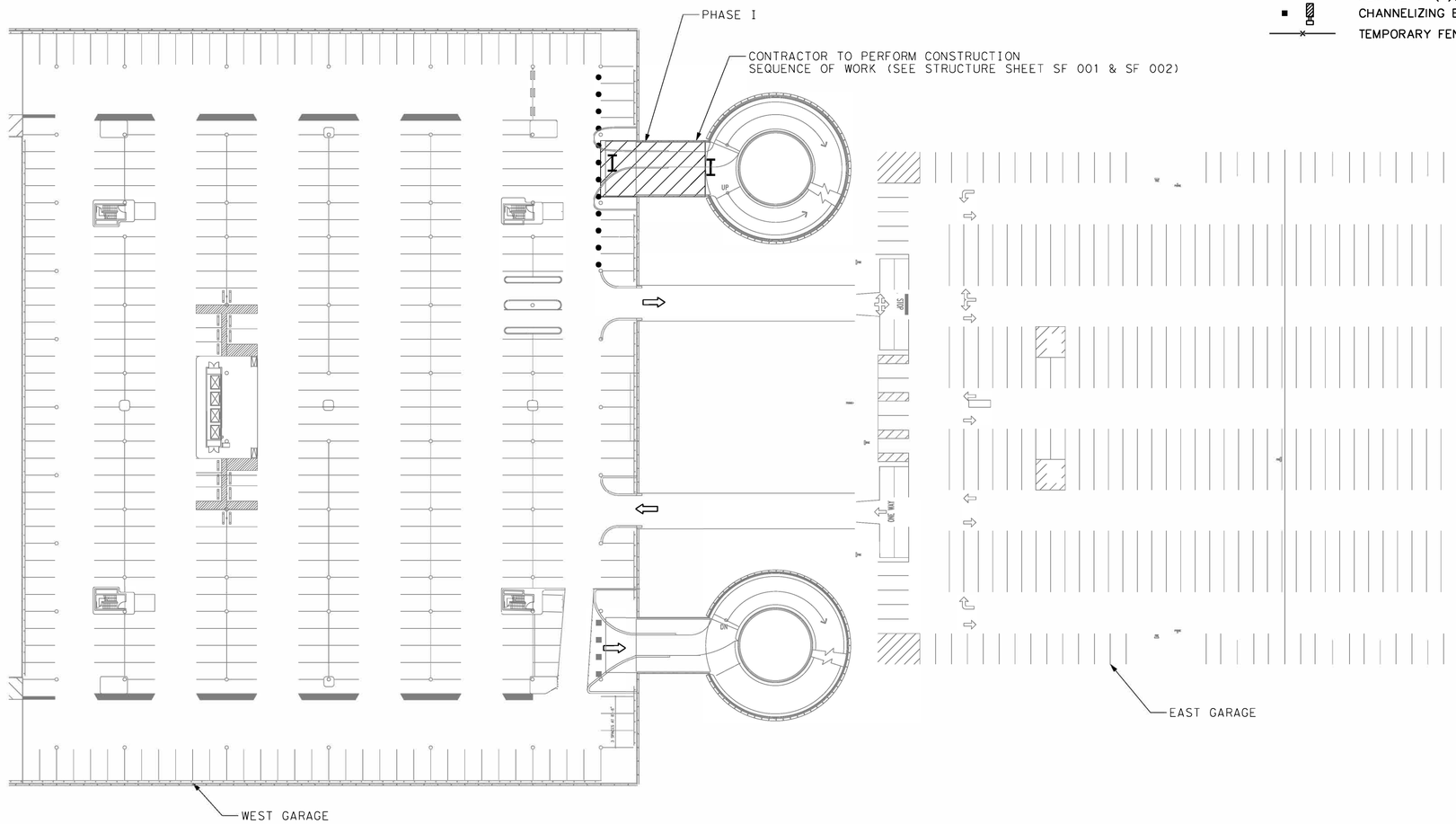
DOA DWG FILE:
PLOT DATE: 14 May 2020 5:09:35 PM



LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- [A] WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
- [B] WORKZONE PAVEMENT MARKING REMOVE 4" (Y)(SLD)
- CHANNELIZING BARRIER
- TEMPORARY FENCE

PARKING GARAGE LEVEL 5
PHASE IA AND IB

NORTH BRIDGE REPAIR

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3.
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

BRIDGE BEARING REPAIR

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

SP ENGINEERING,INC
4418 Bluebonnet Dr., Suite 406
Stafford, Texas 77477
832.867.2522
TBPE Registration Number: F-11028

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STATE OF TEXAS
SHAUKAT KHAN
90195
LICENSED PROFESSIONAL ENGINEER
9/08/20

SHEET NAME: TRAFFIC CONTROL PLAN PARKING GARAGE LEVEL 5 (TCP-04)

SHEET No.	SCALE:
XT105	NTS

SHEET SIZE: 22"x34" ANSI-D

FILE PATH:

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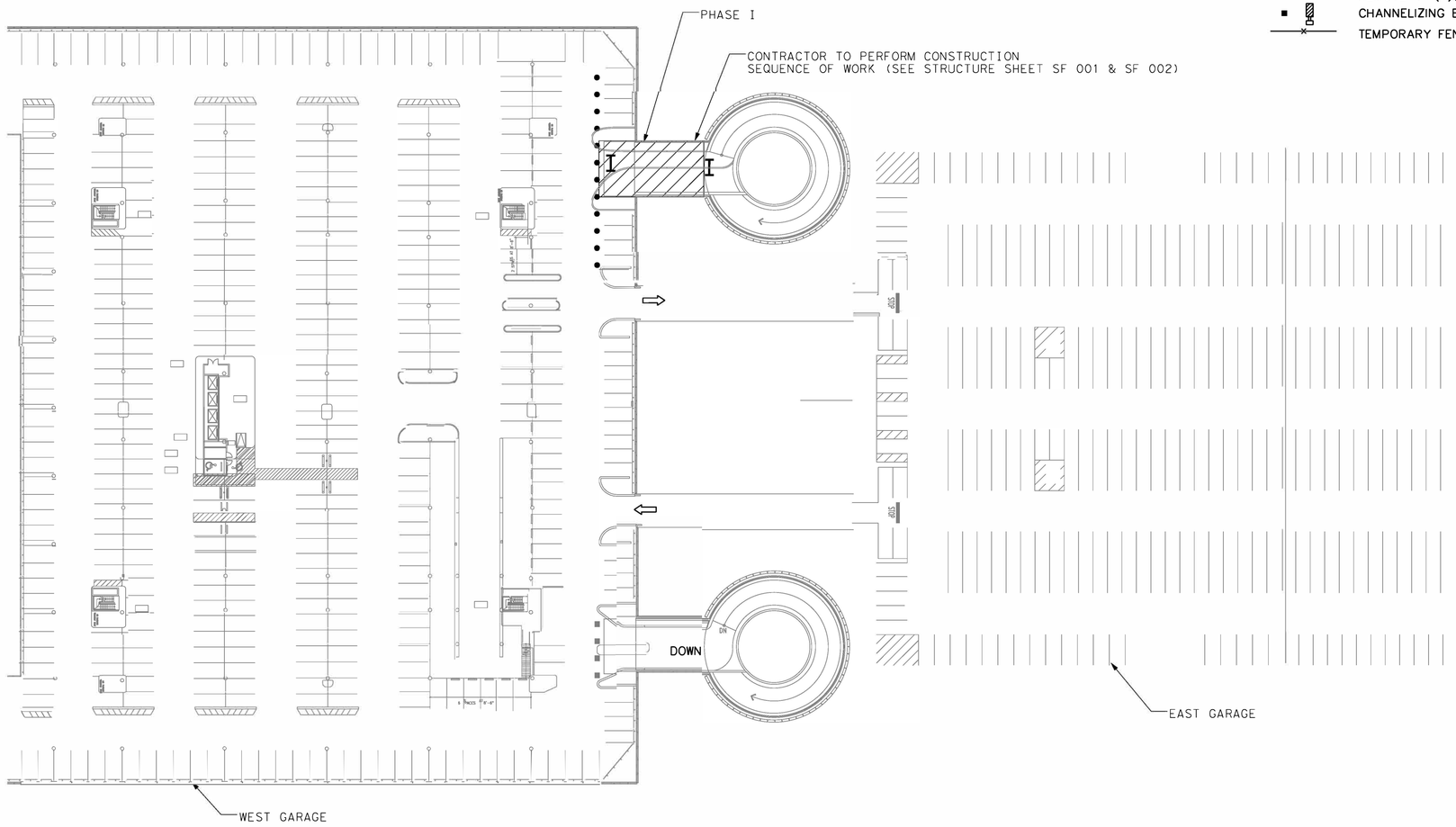

LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- A — WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
- B — WORKZONE PAVEMENT MARKING REMOVE 4" (Y)(SLD)
- CHANNELIZING BARRIER
- TEMPORARY FENCE

PARKING GARAGE LEVEL 6
PHASE I

NORTH BRIDGE REPAIR

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3.
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM

HOUSTON AIRPORTS

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HOUSTON, TX 77032

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STATE OF TEXAS
SHAUKAT KHAN
90195
LICENSED
PROFESSIONAL ENGINEER
Shaukat Khan
9/08/20

SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: TRAFFIC CONTROL PLAN
PARKING GARAGE LEVEL 6 (TCP-05)

SHEET No.	SCALE:
XT106	NTS

FILE PATH:

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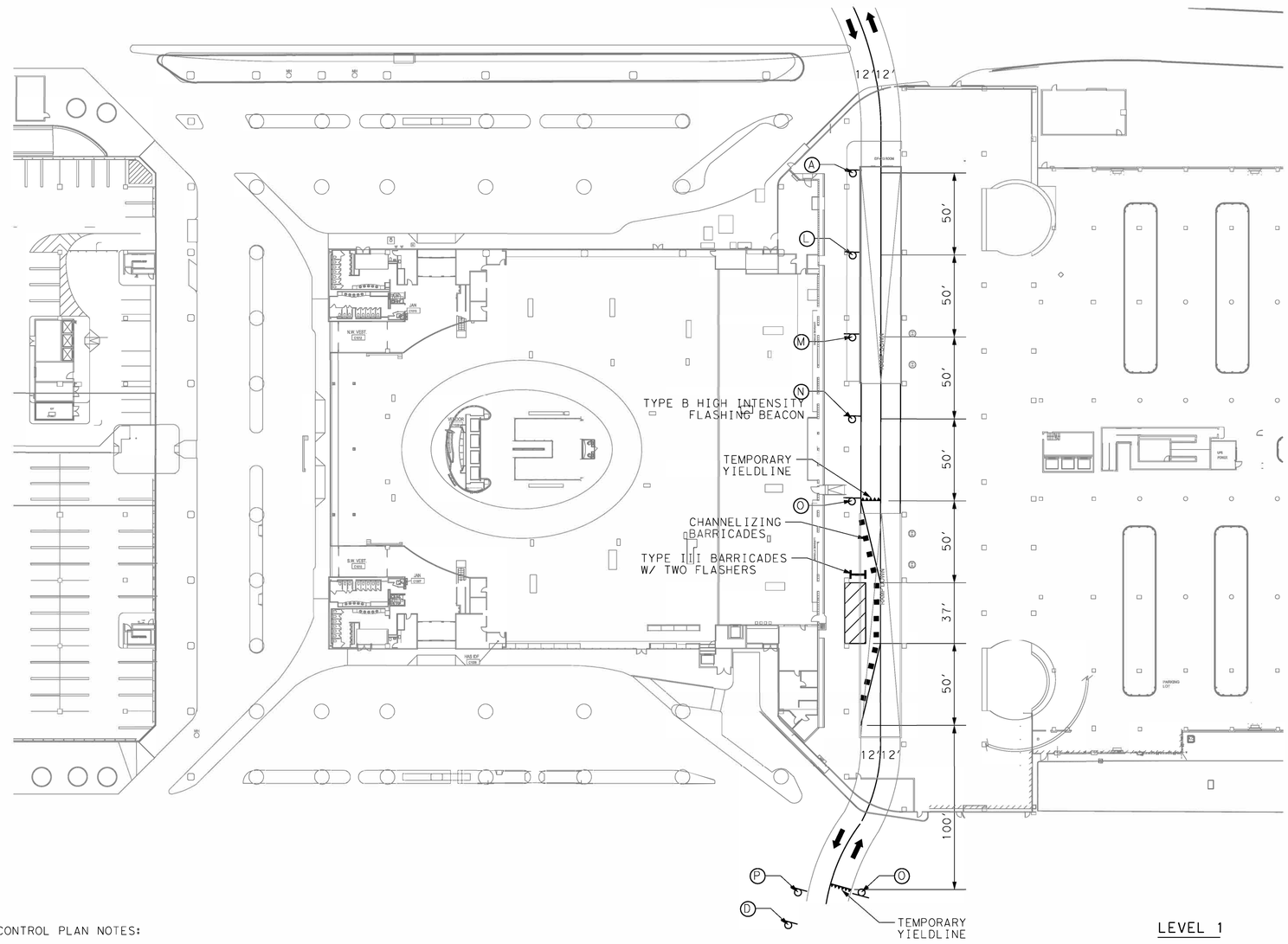
DOA DWG FILE:
PLOT DATE: 14 May 2020 5:09:35 PM



LEVEL 1

LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- [A] WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
- [B] WORKZONE PAVEMENT MARKING REMOVE 4" (Y)(SLD)
- CHANNELIZING BARRIER
- TEMPORARY FENCE

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3.
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

BRIDGE BEARING REPAIR

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STATE OF TEXAS — SHAUKAT KHAN — 90195 — LICENSED PROFESSIONAL ENGINEER
Shaukat Khan 9/08/20

SHEET NAME: TRAFFIC CONTROL PLAN
LEVEL 1
UNITED BAGGAGE HANDLING AREA (TCP-06)

SHEET No.	SCALE:
XT201	NTS

SHEET SIZE: 22"x34" ANSI-D

FILE PATH:

PLOT DATE: 14 May 2020 5:09:35 PM

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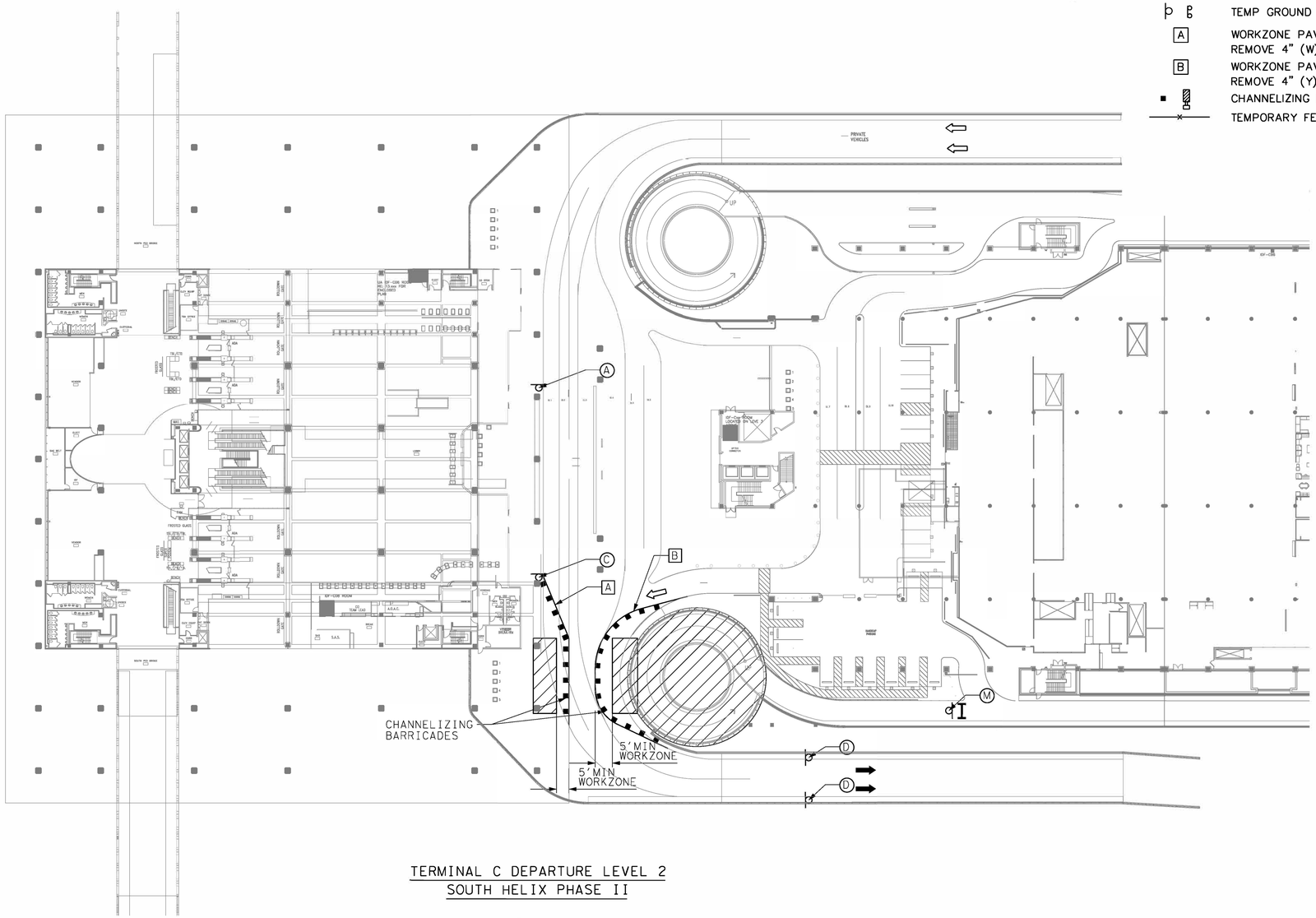

TERMINAL C DEPARTURE LEVEL 2
SOUTH HELIX PHASE II

SOUTH BRIDGE REPAIR

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3.
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM

HOUSTON AIRPORTS

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APPROVAL DATE:	

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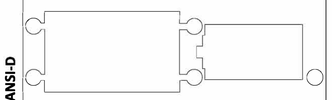
STATE OF TEXAS
SHAUKAT KHAN
90195
LICENSED PROFESSIONAL ENGINEER
9/08/20



SHEET NAME:	TRAFFIC CONTROL PLAN TERMINAL C DEPARTURE LEVEL 2 (TCP-07)
SHEET No.	XT202
SCALE:	NTS

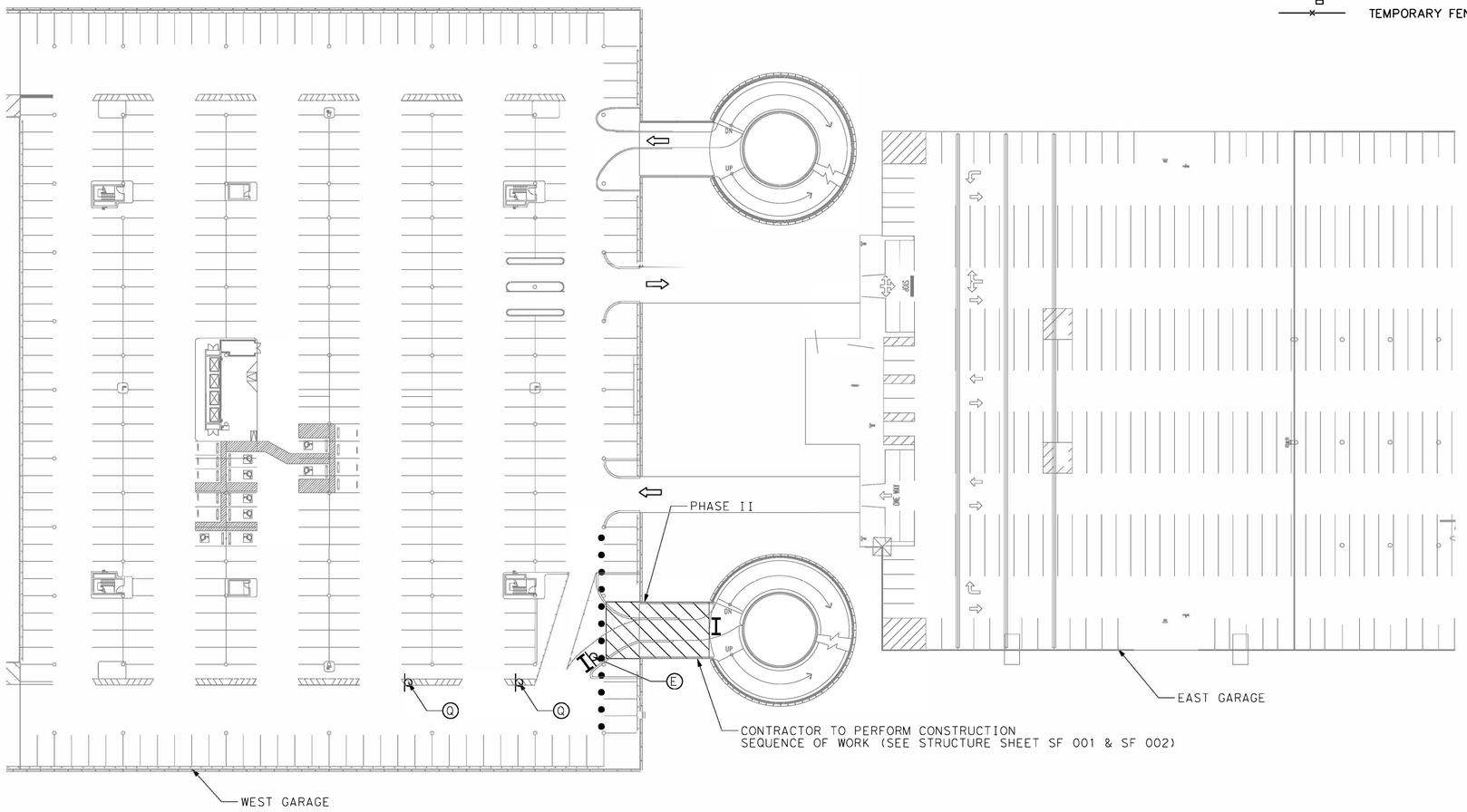
FILE PATH:

OLD DOA No.:
DOA DWG FILE:
PLOT DATE: 14 May 2020 5:09:35 PM

SHEET SIZE: 22"x34" ANSI-D

LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- A — WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
- B — WORKZONE PAVEMENT MARKING REMOVE 4" (Y)(SLD)
- CHANNELIZING BARRIER
- TEMPORARY FENCE



GARAGE PARKING LEVEL 4
SOUTH HELIX PHASE II

SOUTH BRIDGE REPAIR

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3.
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM

NOTE:
CONTRACTOR RESPONSIBILITY TO COORDINATE WITH PARKING MANAGEMENT TO INSTALL ADDITIONAL SIGNAGE ON LEVEL 4 FOR VALET PARKING

HOUSTON AIRPORTS

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HOUSTON, TX 77032

BRIDGE BEARING REPAIR

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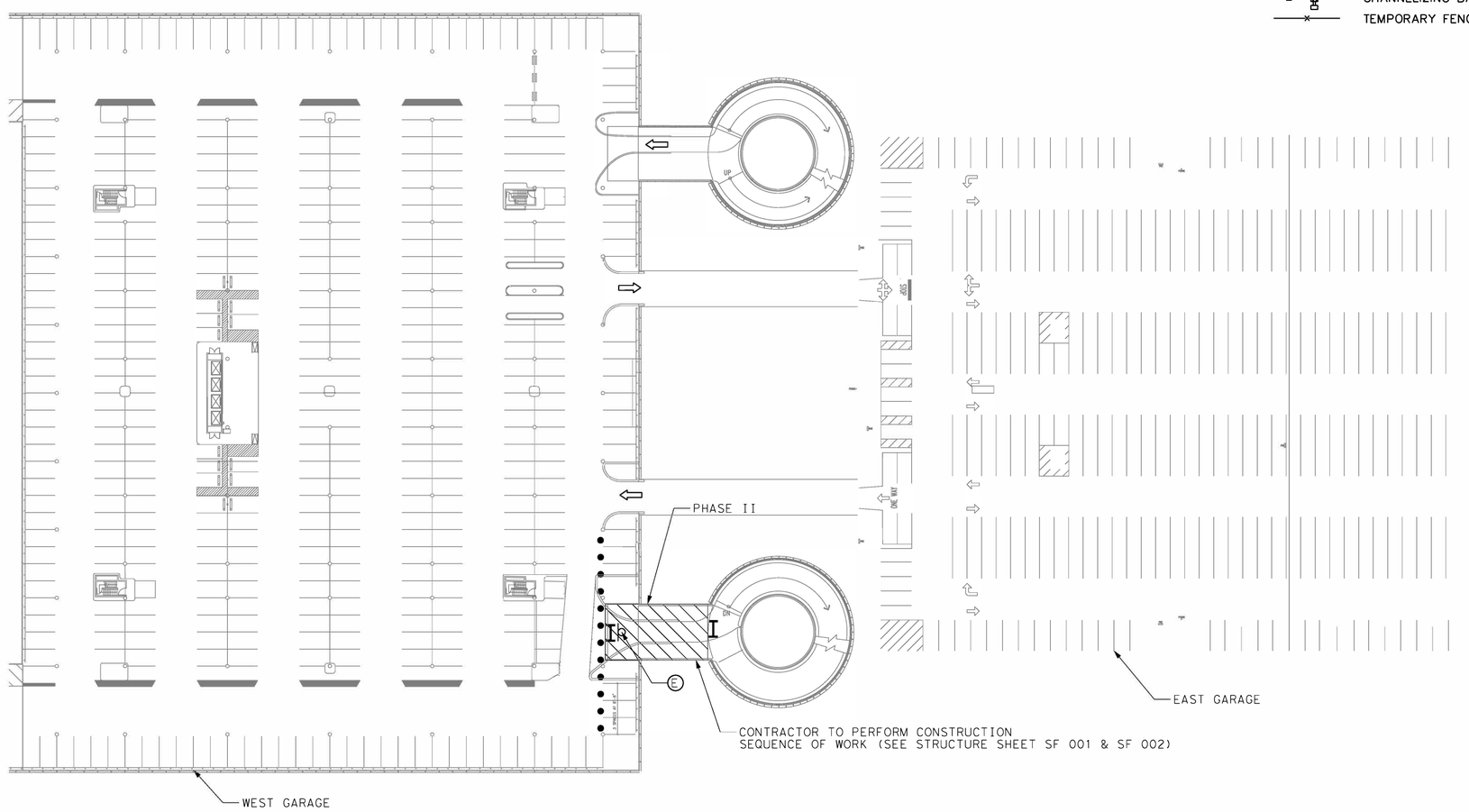
STATE OF TEXAS — SHAUKAT KHAN — 90195 — LICENSED PROFESSIONAL ENGINEER
Shaukat Khan 9/08/20

SHEET NAME: TRAFFIC CONTROL PLAN PARKING GARAGE LEVEL 4 (TCP-08)

SHEET No.	SCALE:
XT204	NTS

SHEET SIZE: 22"x34" ANSI-D

FILE PATH:
OLD DOA No.:
DOA DWG FILE:
PLOT DATE: 14 May 2020 5:09:35 PM



LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- [A] WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
- [B] WORKZONE PAVEMENT MARKING REMOVE 4" (Y)(SLD)
- CHANNELIZING BARRIER
- TEMPORARY FENCE

GARAGE PARKING LEVEL 5
SOUTH HELIX PHASE II

SOUTH BRIDGE REPAIR

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3.
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM

NOTE:
CONTRACTOR RESPONSIBILITY TO COORDINATE WITH PARKING MANAGEMENT TO INSTALL ADDITIONAL SIGNAGE ON LEVEL 4 FOR VALET PARKING

FILE PATH:

PLOT DATE: 14 May 2020 5:09:35 PM

OLD DOA No.:
DOA DWG FILE:

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

BRIDGE BEARING REPAIR

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

SP ENGINEERING,INC
4418 Bluebonnet Dr., Suite 406
Stafford, Texas 77477
832.867.2522
TBPE Registration Number: F-11028

DESIGNER PROJECT No.:	19-21
PROJECT STATUS:	CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY

DESIGNER:	
DRAWN BY:	
CHECKED BY:	
ISSUE DATE:	
APPROVED BY:	
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category

AFR

ISSUED FOR REVIEW

STATE OF TEXAS
SHAUKAT KHAN
90195
LICENSED PROFESSIONAL ENGINEER
9/08/20

SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: TRAFFIC CONTROL PLAN
PARKING GARAGE LEVEL 5 (TCP-09)

SHEET No.	SCALE:
XT 205	NTS

LEGEND

- CONSTRUCTION THIS PHASE
- PROPOSED DIRECTION OF TRAFFIC
- EXISTING DIRECTION OF TRAFFIC
- BARRELS OR DRUMS
- PORTABLE SIGN/ARROW BOARD
- TYPE 3 BARRICADE
- TEMP GROUND MOUNTED SIGNS
- [A] WORKZONE PAVEMENT MARKING REMOVE 4" (W)(SLD)
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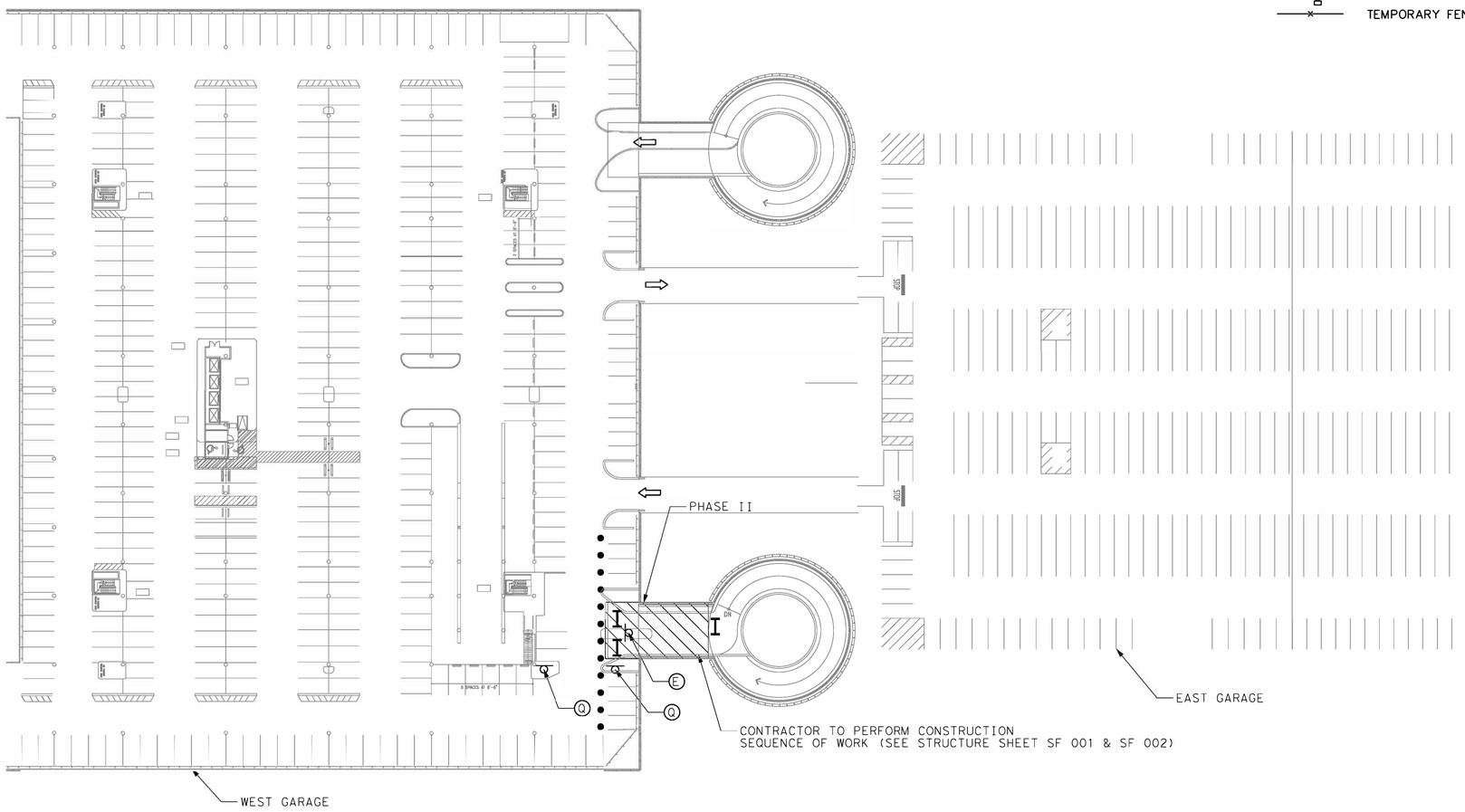
- CHANNELIZING BARRIER
- TEMPORARY FENCE



GARAGE PARKING LEVEL 6
SOUTH HELIX PHASE II

SOUTH BRIDGE REPAIR

TRAFFIC CONTROL PLAN NOTES:

1. REFER TO SHEET TRAFFIC CONTROL PLAN LAYOUT (TCP) SHEET TCP-01 TO TCP-10, SHEET TCP-11 & TCP-12. FOR CONSTRUCTION TRAFFIC SIGNS AND TRAFFIC CONTROL NOTES AND DETAILS.
2. REFER TO STRUCTURAL SHEETS FOR BRIDGE BEAMING CONCERNS STRUCTURE DETAILS.
3. CONTRACTOR SHALL INSTALL 6' CHAIN LINK FENCE WITH GREEN FABRIC AROUND WORK AREA TO PREVENT PEDESTRIAN ACCESS. TO BE PAID UNDER TEMPORARY CONSTRUCTION ITEMS.
4. NO WORK PERFORMED IN LEVEL 3.
5. CONTRACTOR TO MAINTAIN 11' LANES TRAVEL LANES
6. CONTRACTOR SHALL WORK DURING HOURS OF 9 PM TO 6 AM

NOTE:
CONTRACTOR RESPONSIBILITY TO COORDINATE WITH PARKING MANAGEMENT TO INSTALL ADDITIONAL SIGNAGE ON LEVEL 4 FOR VALET PARKING

HOUSTON AIRPORTS

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HOUSTON, TX 77032

BRIDGE BEARING REPAIR

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C.O.H. No.	D.O.A No.

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832.867.2522
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APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category: **AFR** — ISSUED FOR REVIEW

STATE OF TEXAS — SHAUKAT KHAN — 90195 — LICENSED PROFESSIONAL ENGINEER
9/08/20

SHEET NAME: TRAFFIC CONTROL PLAN PARKING GARAGE LEVEL 6 (TCP-10)

SHEET No.	SCALE:
XT 206	NTS

SHEET SIZE: 22"x34" ANSI-D

FILE PATH:

PLOT DATE: 14 May 2020 5:09:35 PM

OLD DOA No. :
DOA DWG FILE:

A

CW21-7D
36"x36"

B

CW20-5R
36"X36"

C

CW20-5L
48"X48"

D

G20-2a
48"X24"

E

R5-1
36"X36"

F

R4-8
36"X48"

G

R3-R (R)
36"X36"

H

R3-R (R)
36"X36"

I

36"x36"

J

48"x24"

K

R2-1
18"X24"
G20-5AP
24"X18"

L

R4-1
24"X30"

M

CW20-4D
48"X48"

N

CW3-2
48"X48"

O

R1-2
48"X48"
R1-2AP
48"X48"

P

R4-2
24"X30"

Q

24"X30"

SPECIAL TRAFFIC REQUIREMENTS:

1. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TEXAS MUTCD, MOST RECENT EDITION WITH REVISIONS) DURING CONSTRUCTION.
2. CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING AND MAINTAINING PAVEMENT MARKINGS WHICH INCLUDE CENTERLINE, BARRIER LINES, LANE LINES AND RAISED PAVEMENT MARKINGS.
3. THIS TRAFFIC CONTROL PLAN REPRESENTS THE MINIMUM REQUIRED BY TRAFFIC CONDITIONS IN THE FIELD. CONTRACTOR TO MAINTAIN ACCESS TO ADJACENT PROPERTIES AT ALL TIMES.
4. CONTRACTOR SHALL COVER OPEN PAVEMENT EXCAVATIONS WITH ANCHORED STEEL PLATES DURING NONWORKING HOURS, AND OPEN LANES FOR NORMAL TRAFFIC FLOW
5. OFF-DUTY UNIFORMED POLICE OFFICERS ARE REQUIRED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED.
6. LANE CLOSURE TIME(S) SHALL BE SPECIFIED ON THE LANE CLOSURE PERMIT.
7. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF "TRAFFIC CONTROL PLANS" DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS, THEY SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT AN ALTERNATE SET OF PLANS* TO PLAN REVIEW SECTION FOR APPROVAL TEN WORKING DAYS PRIOR TO IMPLANTATION. *THESE PLANS SHALL BE DRAWN TO SCALE ON REPRODUCIBLE MYLARS AND SEALED BY A LICENSED ENGINEER IN THE STATE OF TEXAS. PLANS WILL BECOME A PART OF THE CONTRACT DRAWINGS.
8. APPROVED COPIES OF TRAFFIC CONTROL PLANS AND LANE CLOSURE PERMITS SHALL BE AVAILABLE FOR INSPECTION AT JOB SITE AT ALL TIMES. CONTRACTOR MUST SECURE "LANE CLOSURE PERMITS" FROM CITY'S TRAFFIC MANAGEMENT AND MAINTENANCE BRANCH BEFORE CLOSING A LANE/SIDEWALK. THE REQUEST MUST BE MADE AT LEAST THREE BUSINESS DAYS PRIOR TO THE DATE FOR WHICH CLOSURE IS SOUGHT. NOTE THAT WORKING HOURS MAY BE RESTRICTED OR THE REQUEST MAY BE DENIED. CALL 713-837-7280 FOR AN APPLICATION.
9. LANES SHALL BE KEPT CLOSED DURING PAVEMENT SURFACE RESTORATION AND OPENED ONLY AFTER PAVEMENT IS RESTORED COMPLETELY.

NOTES:

1. ALL TEMPORARY SIGNS TO BE PAID UNDER G 105-5.1 TEMPORARY CONSTRUCTION ITEMS

FILE PATH:

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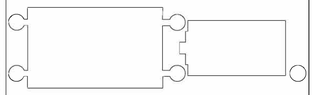
STATE OF TEXAS
SHAUKAT KHAN
90195
LICENSED PROFESSIONAL ENGINEER

Shaukat Khan 9/08/20



SHEET SIZE: 22"x34" ANSI-D

SHEET NAME: TRAFFIC CONTROL PLAN SIGN DETAILS (TCP-11)

SHEET No.	SCALE:
XT400	NTS

GENERAL NOTES

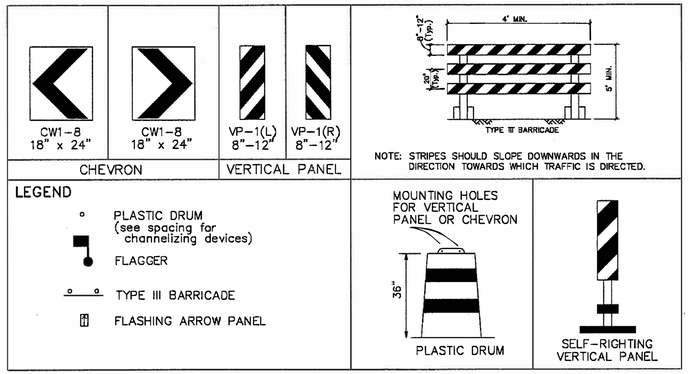
1. The Contractor shall provide and install traffic control devices in conformance with Part VI of the Texas Manual on Traffic Control Devices (TMUTCD)
2. All signs and traffic control devices shall conform the latest version of the TMUTCD
3. No lanes shall be closed during the hours of 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM Monday thru Friday without approval of the City Traffic Engineer.
4. No work shall be performed in residential areas from 7:00 PM to 7:00 AM.
5. Contractor shall maintain approved number of through lanes of traffic in each direction during construction working hours. Traffic control plans shall include one-way and/or detour plans. Contractor shall maintain ADA compliant pedestrian access to bus stops and adequate bus access to all the bus stops.
6. Contractor shall maintain traffic lanes and detours according to traffic control plans during working hours.
7. Contractor shall cover open pavement excavations for minor utility work with anchored steel plate during non-working hours, and open lanes for normal traffic flow when feasible.
8. If the Contractor chooses to use a different method of "Traffic Control Plans" during the construction than what is outlined in the contract drawings, the Contractor shall be responsible for prepare and submit an alternate set of traffic control plans to the City of Houston Project Manager for approval ten working days prior to implementation. These plans shall be drawn to scale and reproducible in mylars and shall be sealed by a Licensed Engineer in the State of Texas. Transportation & Drainage Operations representative approval is required to accept the proposed changes.
9. Contractor shall secure lane/sidewalk/bicycle facility closure permits from Transportation & Drainage Operations (Mobility Permit Section at http://www.gims.houstontx.gov/portalWS/MainPortal.aspx) before implementing the traffic control plans, construction sequencing, and construction schedule with the application.
10. Contractor shall have approved traffic control plan and permit at the job site for inspection at all times.
11. During pavement surface restoration projects; the Contractor shall not open closed lanes until the pavement surface has cured enough to allow vehicular traffic according to City of Houston Standard Specifications.
12. The Contractor is responsible for scheduling and coordinating all construction activities with stake holders in the vicinity including emergency response agencies such as Houston Police Department, Houston Fire Department, and Metropolitan Transit Authority.
13. Contractor shall be responsible for issuing all work directives to all sub-contractors, utility companies, and all other entities performing construction work associated with the project.
14. Nothing in these notes or plans shall relieve the Contractor of the responsibility for job site conditions during the course of construction of the project; including safety of all modes of transportation, persons, and property, and that this requirement shall apply continuously and not be limited to working hours.
15. The Transportation & Drainage Operations (Mobility Permits Group) per the direction of the City Traffic Engineer have the right to demand the installation of additional traffic control devices or modifications of these plans and notes, as deemed necessary to promote the safe and orderly flow of traffic, including pedestrians and bicycles, through the construction work zone. The Contractor shall comply with these additional requests or modifications with due diligence.
16. All existing traffic control signs and pavement markings shall be maintained in visible locations during construction unless prior written approval is obtained from City of Houston Project Manager. The Contractor shall restore or replace (at the discretion of the City Traffic Engineer) any pavement marking or signing damage during construction operations, including Raised Pavement Markers (RPMs).
17. When entering or leaving roadways carrying public traffic, the Contractor's equipment whether empty or loaded shall in all cases yield to public traffic with assistance of Contractor provided certified flagger/peace officer.
18. Access to driveways adjacent to the construction work zone shall be maintained at all times as much as possible. Additional cones delineators may be required to delineate the driveway access route through the construction zone. A minimum of a travel lane shall be maintained across the driveways, unless prior written approval is obtained from City of Houston Project Manager.
19. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor.
20. The Contractor shall submit an application for temporary parking restrictions if there are parking meters located at the proposed lane closures from Parking Management Division (832-393-8690) at least ten business days before implementation of lane closures. In addition, temporary no parking signs shall be posted 24 hours prior to commencement of work.
21. Additional off duty officers/flaggers may be requested to direct traffic when lanes are blocked at the discretion of the City Project Manager even if they are not specifically identified on the project plans.
22. The Contractor shall replace within 72 hours, all traffic signal loop detectors damaged during construction.
23. In general, a solar powered flashing arrow board shall be required on all major thoroughfare lanes closures. Exceptions to flashing arrow boards and/or implementation on residential lane closures shall be approved by City Traffic Engineer.
24. Approved traffic control plan shall be in place before starting any excavation.

SPACING FOR CHANNELIZING DEVICES

A. Plastic drums on merging taper @ 30' c - c with chevron sign @ 60' c - c and warning lights for overnight closure.
B. Plastic drums on downstream taper @ 30' c - c (return taper and barricade are optional and divided roadway section)
C. Plastic drums on radii @ 35' c -c.
D. Plastic drums on tangent @ 35' c - c with vertical panel at 70' c - c and approved warning light @ 70' c - c (for overnight closure).
E. Plastic drums in front of construction zone @ 20' c - c with vertical panel at 40' c - c and approved warning light @ 40' c - c (for overnight closure).
F. Concrete Traffic Barrier (CTB) or Low Profile Concrete Traffic Barrier (LPCTB) with approved reflectors @ 10' c - c if pavement drop is greater than 1 foot.
G. Plastic drums w/Guard rail mounted.
H. Self- Righting vertical panel spacing.
   - 4 lanes to 2 lanes undivided roadway section @ 20' c - c.
   - 4 lanes divided roadway to one side two way roadway @ 20' c - c.
   - Left lane and right lane storage bays @ 15' c - c.

I. Spacing shown on traffic control shall supersede the above spacing.
J. Spacing may be adjusted to provide driveways, intersections and /or median openings.

CHANNELIZATION AND BARRICADES



TYPICAL SIGN SPACING, TAPER LENGTHS, AND SUGGESTED SPACING OF CHANNELIZATION DEVICES

Posted Speed (mph)	Sign Spacing "X"	Min. Desirable Taper Length "L" 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing Of Device On a Taper	On a Tangent
30	120'	150'	165'	180'	30'	60' - 75'
35	160'	205'	225'	245'	35'	70' - 90'
40	240'	265'	295'	320'	40'	80' - 100'
45	320'	450'	495'	540'	45'	90' - 110'
50	400'	500'	550'	600'	50'	100' - 125'
55	500'	550'	605'	660'	55'	110' - 140'

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TCP NOTES
CHANNELIZING DEVICES
AND BARRICADES
(NOT TO SCALE)

CITY TRAFFIC ENGINEER
CITY ENGINEER

DIRECTOR OF
HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018

DWG NO: 01512-01

HOUSTON AIRPORTS
TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

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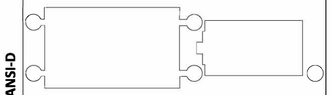
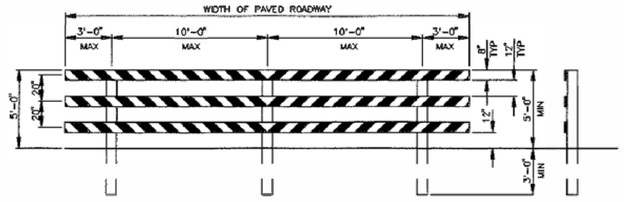


SHEET NAME: TRAFFIC CONTROL PLAN NOTES CHANNELIZING DEVICES AND BARRICADES (TCP-13)
SHEET No. XT410
SCALE: NTS

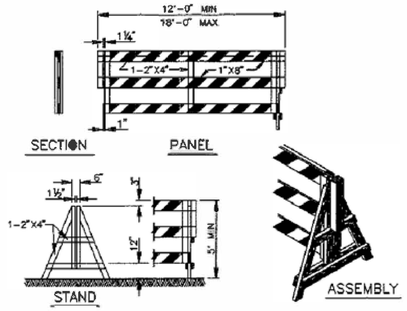
SHEET SIZE: 22"x34" ANSI-D

FILE PATH:
OLD DOA No.:
DOA DWG FILE:
PLOT DATE: 14 May 2020 5:09:35 PM



TYPE III BARRICADE
FOR END OF ROAD

FOR TYPE III BARRICADE FOR END OF ROAD, THE THREE (3) RAILS SHALL BE REFLECTIVE RED AND REFLECTIVE WHITE STRIPES ON SIDE FACING TRAFFIC



DEMOUNTABLE TYPE III BARRICADE

BARRICADE NOTES

THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND IT'S REVISIONS, SHALL GOVERN THE CONSTRUCTION AND USE OF ALL ITEMS HEREIN DESCRIBED.

CHANNELIZATION DEVICES OTHER THAN BARRICADES SHOULD NORMALLY BE USED FOR CHANNELIZATION PURPOSES.

BARRICADES SHOULD NORMALLY BE PLACED PERPENDICULAR TO THE TRAFFIC FLOW. OTHER CHANNELIZING DEVICES, SUCH AS DRUMS, VERTICAL PANELS OR PORTABLE BARRIERS, SHOULD BE USED WHERE NEEDED TO SEPARATE TRAFFIC FROM THE WORK AREA. IN ALL CASES, THE BARRICADES SHOULD BE SO LOCATED AS TO MOST ADVANTAGEOUSLY WARN AND DIRECT TRAFFIC.

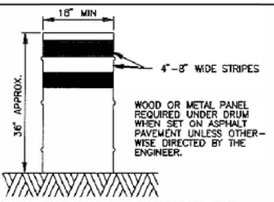
BARRICADES MAY BE DESIGNED AND CONSTRUCTED FROM WOOD OR ANY OTHER SUITABLE MATERIAL IN A MANNER APPROVED BY THE DEPARTMENT OF TRAFFIC AND TRANSPORTATION. THE CONSTRUCTION DETAILS SHOWN HEREON ARE TYPICAL AND ARE SUGGESTED DETAILS FOR WOOD SUPPORT SYSTEMS FOR BARRICADES. THE DETAILS OF RAIL WIDTH AND STRIPING, NUMBER AND SPACING OF RAILS, MINIMUM LENGTH AND HEIGHT (ABOVE PAVEMENT) OF RAILS MUST BE ADHERED TO WHEN ALTERNATE DESIGNS ARE USED.

BARRICADES ARE TO BE CONSTRUCTED OF CLEAN SOUND MATERIAL. ALL SURFACES ABOVE GROUND, WHICH ARE NOT STRIPED, SHALL BE WHITE EXCEPT THE UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED. COMPONENTS MADE OF LUMBER SHALL BE PAINTED WITH A MINIMUM OF TWO COATS OF AN APPROVED BRAND OF WHITE PAINT TO SECURE THOROUGH COVERAGE AND A UNIFORM WHITE COLOR.

THE REFLECTORIZED WHITE AND REFLECTORIZED ORANGE (REFLECTORIZED RED) STRIPES FOR BARRICADES, DRUMS AND VERTICAL PANELS SHALL BE CONSTRUCTED OF "HIGH INTESITY SHEETING AND SHALL BE MAINTAINED TO MEET THE APPEARANCE, COLOR AND REFLECTIVITY REQUIREMENTS SET BY DOTT.

THE CONTRACTOR SHALL MAINTAIN EACH BARRICADE IN A CLEAN AND GOOD CONDITION.

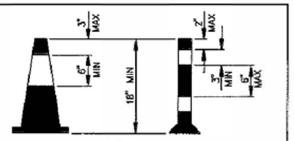
BARRICADES SHALL BE REMOVED UPON COMPLETION OF THE WORK AND/OR THE ELIMINATION OF THE HAZARD ON ANY SECTION.



DRUMS

DRUMS, SET ON END, AND USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE APPROX 36" IN HEIGHT AND A MIN OF 18" IN DIAMETER. THE CONTRACTOR, AT HIS OPTION, MAY USE DRUMS MADE FROM STEEL BARRELS OR BLACK POLYETHYLENE PLASTIC DRUM LINERS WEIGHING APPROX EIGHT POUNDS EACH. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, CIRCUMFERENTIAL, REFLECTORIZED ORANGE AND REFLECTORIZED WHITE STRIPES, 4 TO 8 INCHES WIDE. THE FIRST REFLECTORIZED STRIPE SHOULD START WITHIN TWO (2) INCHES OF THE TOP OF THE DRUM. THERE SHALL BE AT LEAST TWO ORANGE AND TWO WHITE STRIPES ON EACH DRUM. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, THEY SHALL BE NO MORE THAN 2 INCHES WIDE. METAL DRUMS SHALL BE PAINTED BLACK OR ORANGE BEFORE REFLECTORIZED STRIPES ARE ADDED. ALL DRUMS ON PROJECT WILL BE THE SAME COLOR. WHEN DRUMS ARE PLACED IN THE ROADWAY, APPROPIATE WARNING SIGNS SHOULD BE USED. DURING HOURS OF DARKNESS, A FLASHING WARNING LIGHT SHOULD BE PLACED ON DRUMS USED SINGLY AS A WARNING DEVICE. STEADY BURN ELECTRIC LIGHTS OR DELINEATORS SHOULD BE PLACED ON DRUMS USED IN SERIES FOR TRAFFIC CHANNELIZATION. DRUMS SHALL BE WEIGHTED WITH SAND TO THE EXTENT INDICATED IN THE PLANS.

CW1-8 CHEVRON SIGNS, CW1-6A ARROW SIGNS OR VP-1 VERTICAL PANELS MOUNTED ABOVE DRUMS MAY BE USED AS SUPPLEMENTS TO DRUM DELINEATION.

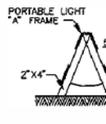


CONES

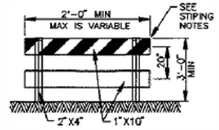
TRAFFIC CONES AND TUBULAR MARKERS SHALL BE A MIN OF 18" INCHES IN HEIGHT WITH A BROADENED BASE AND MAY BE MADE OF VARIOUS MATERIALS TO WITHSTAND IMPACT WITHOUT DAMAGE TO THEMSELVES OR TO VEHICLES. LARGER SIZES SHOULD BE USED ON FREEWAYS AND OTHER ROADWAYS WHERE SPEED ARE RELATIVELY HIGH OR WHERE EVER MORE CONSPICUOUS GUIDANCE IS NEEDED. ORANGE SHALL BE THE PREDOMINANT COLOR ON CONES AND TUBULAR MARKERS. THEY SHOULD BE KEPT CLEAN AND BRIGHT FOR MAX TARGET VALUE. FOR NIGHTTIME USE THEY SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAX VISIBILITY. REFLECTORIZED MATERIAL SHALL HAVE A SMOOTH, SEALED OUTER SURFACE WHICH WILL DISPLAY THE SAME APPROX COLOR DAY AND NIGHT.

REFLECTORIZATION OF TUBULAR MARKERS SHALL BE A MIN OF TWO THREE-INCH BANDS PLACED A MAX OF 2" FROM THE TOP WITH A MAX OF 6" BETWEEN THE BANDS. REFLECTORIZATION OF CONES SHALL BE PROVIDED BY A MIN 6" BAND PLACED A MAX OF 3" FROM THE TOP.

CONES OR TUBULAR MARKERS ARE GENERALLY ONLY SUITABLE FOR TEMPORARY USAGE (UP TO 8 HOURS) WITH OTHER CHANNELIZATION DEVICES SUCH AS VERTICAL PANELS OR BARRICADES PREFERRED FOR LONGER TERM USAGE. CARE SHOULD BE TAKEN TO INSURE THAT THEY REMAIN IN THEIR PROPER LOCATION AND IN AN UPRIGHT POSITION.



"A" FRAME



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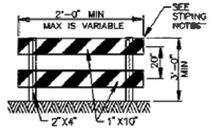

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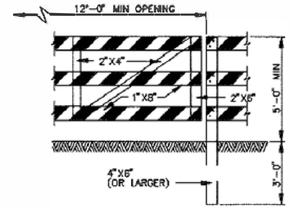
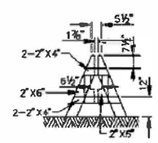


GATE FOR
TYPE III BARRICADE



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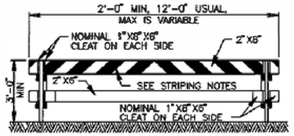

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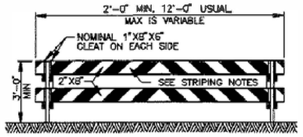

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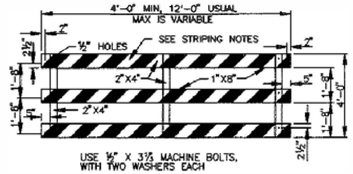
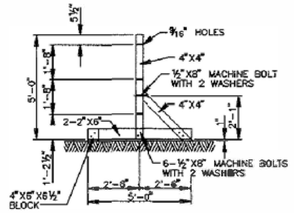
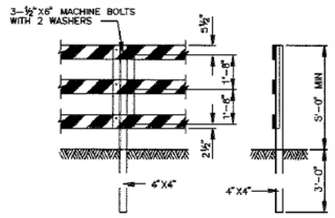


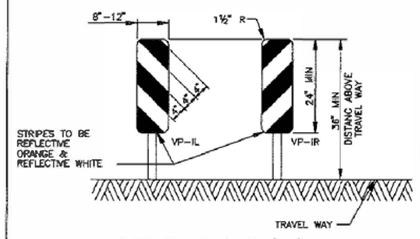
PANEL FOR
TYPE III BARRICADE



STAND FOR
TYPE III BARRICADE

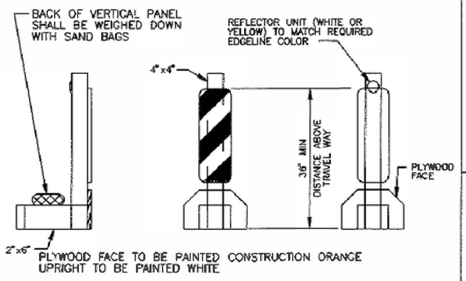


POST FOR
TYPE III BARRICADE



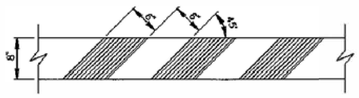
VERTICAL PANELS (VP)

VERTICAL PANELS ARE NORMALLY USED AS CHANNELIZING DEVICES TO INDICATE TANGENT OR NEARLY TANGENT ROADWAY ALIGNMENT WHERE GOOD TARGET VALUE OF A DEVICE IS NEEDED IN DAYTIME AS WELL AS THE NIGHTTIME. IN ADDITION, VERTICAL PANELS SHOULD BE USED AT THE EDGE OF SHOULDER DROP-OFFS AND OTHER SUCH AREAS AS LANE TRANSITIONS WHERE POSITIVE DAY AND NIGHT DELINEATION MAY BE REQUIRED. VERTICAL PANELS SHOULD BE MOUNTED BACK TO BACK IF USED AT THE EDGE OF CUTS ADJACENT TO TWO-WAY TWO LANE ROADWAYS. STRIPES SHOULD ALWAYS SLOPE DOWNWARD TOWARD THE TRAVELED WAY.



TYPICAL PORTABLE VERTICAL PANEL
OR DELINEATOR

OTHER SIMILAR SUPPORTS MAY BE USED WHEN APPROVED OR DIRECTED BY THE COH DEPT OF TRAFFIC AND TRANSPORTATION



STRIPING FOR BARRICADE

FOR ALL TYPES OF BARRICADES WITH RAILS LESS THAN 3'-0" LONG, STRIPES 4" WIDE SHALL BE USED. IDENTIFICATION MARKINGS MAY BE SHOWN ONLY ON BACK SIDE OF BARRICADE RAILS.

STRIPING SHOULD COVER THE FULL WIDTH OF THE RAIL. STRIPING OF RAILS, PANELS, ETC. SHOULD SLOPE DOWNWARD AT AN ANGLE OF 45 DEGREES IN DIRECTIONS TRAFFIC IS TO PASS.

WHERE A BARRICADE EXTENDS ENTIRELY ACROSS A ROADWAY, IT IS DESIRABLE THAT THE STRIPES SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING. WHEN BOTH RIGHT AND LEFT TURNS ARE PROVIDED FOR, THE CHEVRON STRIPING MAY SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

BARRICADE STANDARD

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 01580-01

HOUSTON AIRPORTS

TERMINAL C AT IAH - 16930 JFK BLVD
HOUSTON, TX 77032

BRIDGE BEARING REPAIR

C.I.P. No.	A.I.P. No.
C.O.H. No.	D.O.A No.

SP ENGINEERING,INC
4418 Bluebonnet Dr., Suite 406
Stafford, Texas 77477
832.867.2522
TBPE Registration Number: F-11028

DESIGNER PROJECT No.:	19-21
PROJECT STATUS:	CONSTRUCTION DOCUMENTS

REVISIONS

No.	DESCRIPTION	DATE	BY

DESIGNER:	
DRAWN BY:	
CHECKED BY:	
ISSUE DATE:	
APPROVED BY:	
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category: **AFR** — ISSUED FOR REVIEW

SHEET NAME:	TRAFFIC CONTROL PLAN BARRICADE STANDARDS (TCP-12)
SHEET No.:	XT411
SCALE:	NTS

SHEET SIZE: 22"x34" ANSI-D

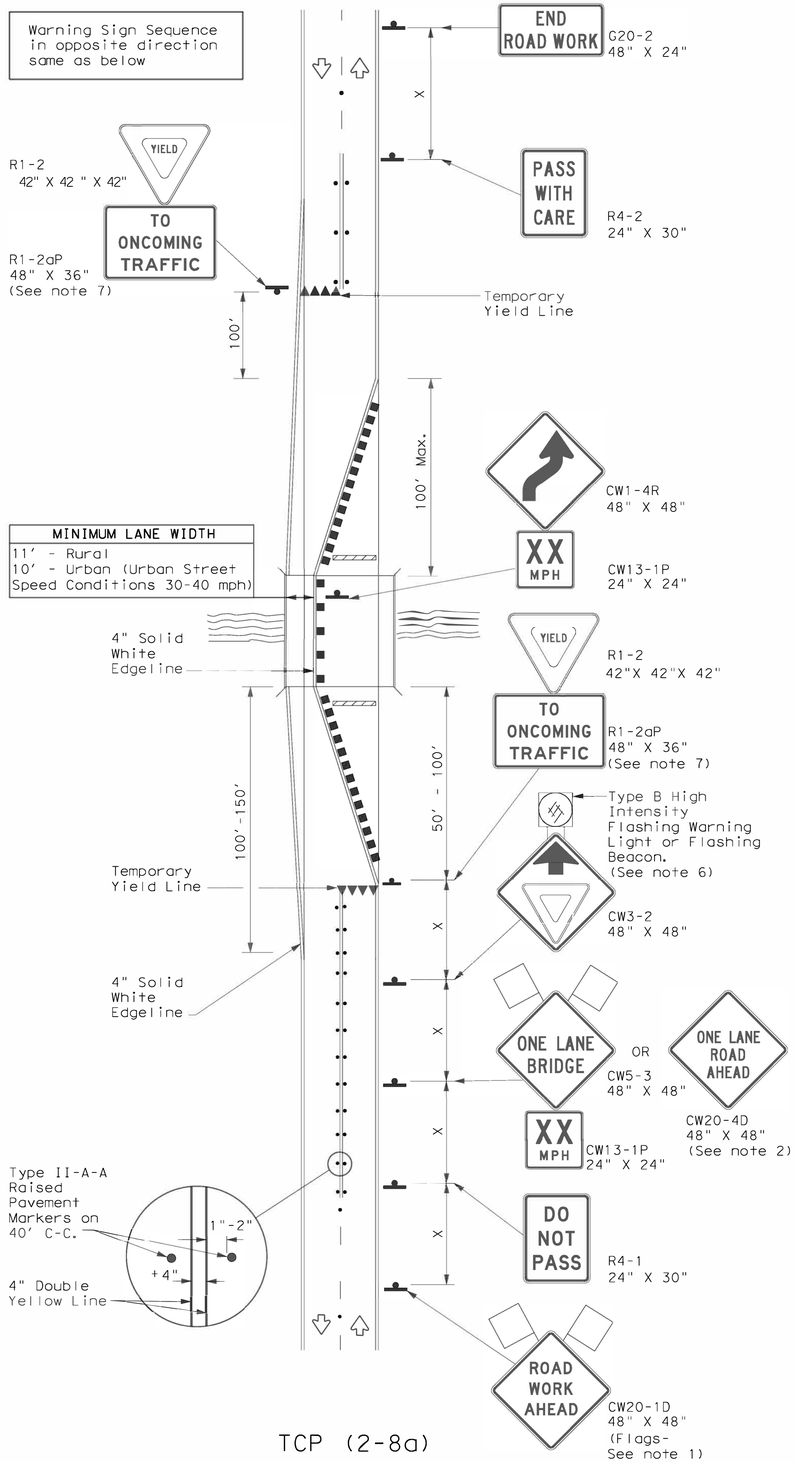
FILE PATH:

PLOT DATE: 14 May 2020 5:09:35 PM

OLD DOA No.:

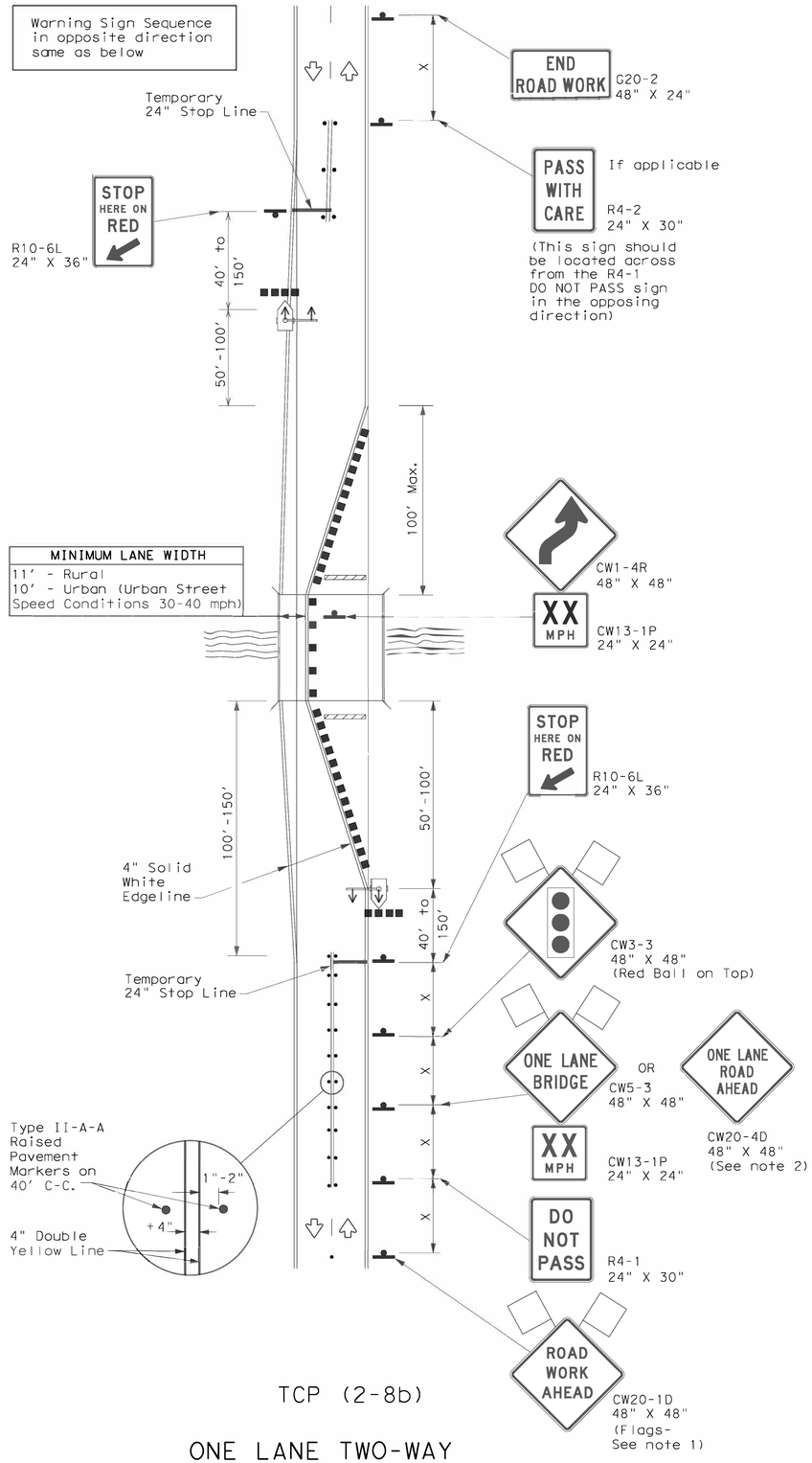
DOA DWG FILE:

DATE:
FILE:



TCP (2-8a)

ONE LANE TWO-WAY
TRAFFIC CONTROL WITH YIELD SIGNS
(Less Than 2000 ADT-See Note 5)



TCP (2-8b)

ONE LANE TWO-WAY
TRAFFIC CONTROL WITH TRAFFIC SIGNAL

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Sign		Traffic Flow
	Flag		Flagger
	Raised Pavement Markers Ty II-AA		Temporary or Portable Traffic Signal

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳ 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

✳ Conventional Roads Only

✳✳ Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. When this TCP is used at a location which does not involve a bridge, a 48" x 48" CW20-4D "ONE LANE ROAD AHEAD" signs should be used in lieu of the CW5-3 "ONE LANE BRIDGE" signs. The CW13-1P Advisory Speed Plaque is required with either warning sign.
3. Raised pavement markers shall be placed 40 feet c-c on centerline between DO NOT PASS signs and stop or yield lines.
4. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 20 feet is recommended. The 20 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

TCP (2-8a)

5. Traffic control by CW3-2 "YIELD AHEAD" symbol signs for one lane two-way traffic control operations should be limited to work spaces less than 400 feet long and roadways with less than 2000 ADT. Otherwise, portable traffic signals should be used.
6. If power is available, a flashing beacon should be attached to the CW3-2 "YIELD AHEAD" symbol sign for emphasis.
7. The R1-2 "YIELD" and R1-2aP "TO ONCOMING TRAFFIC" signs and other regulatory signs shall be installed at 7 foot minimum mounting height.

TCP (2-8b)

8. A list of approved Portable Traffic Signals can be found in the "Compliant Work Zone Traffic Control Devices" list.
9. Portable traffic signals should be located to provide adequate stopping sight distance for approaching motorist (See table above).

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LONG TERM ONE-LANE TWO-WAY CONTROL

TCP(2-8)-18 (TCP-14)

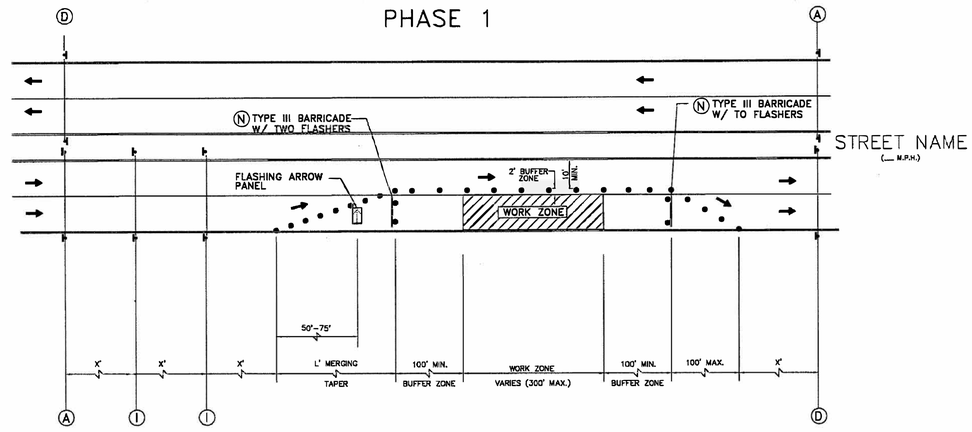
FILE: tcp2-8-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12				XT421
4-98 2-18				

A	D	I	J	N
ROAD WORK AHEAD	END ROAD WORK	RIGHT LANE CLOSED AHEAD	LEFT LANE CLOSED AHEAD	ROAD CLOSED
CW20-1	G20-2	CW20-5(2) CW16-3	CW20-5(1) CW16-3	R11-2

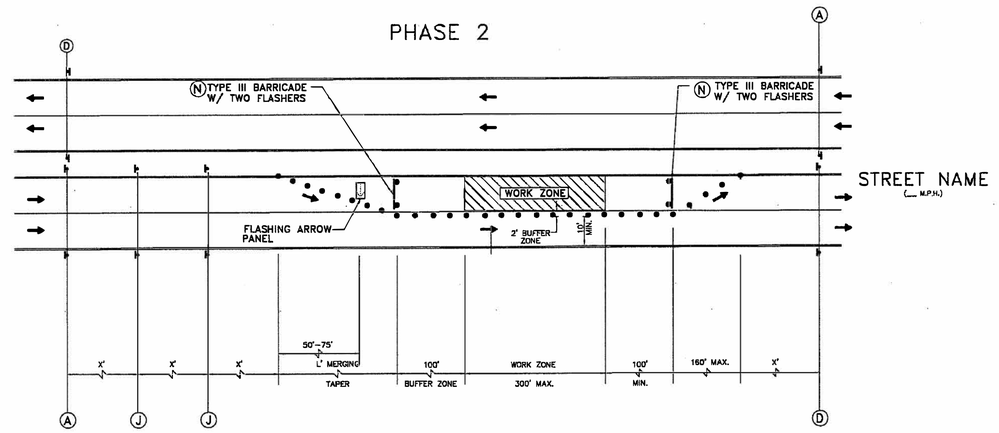
LEGEND

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- TRAFFIC FLOW
- CONSTRUCTION AREA

PHASE 1



PHASE 2



NOTE:

1. RETURN TAPERS AND DOWNSTREAM BARRICADES ARE OPTIONAL ON A DIVIDED ROADWAY SECTION.
2. DOUBLE SIGNS SHALL BE USED ONLY ON ROADWAYS WITH MEDIANS.
3. FOR DIMENSIONS REFER TO SHEET 01512-01.

CITY OF HOUSTON
HOUSTON PUBLIC WORKS

TCP ONE LANE CLOSURE
PHASE 1 & 2

(NOT TO SCALE)

CITY TRAFFIC ENGINEER
CITY ENGINEER

DIRECTOR OF HOUSTON PUBLIC WORKS

EFF DATE: JUL-01-2018

DWG NO: 01512-04

FILE PATH:

OLD DOA No.:
DOA DWG FILE:
PLOT DATE: 14 May 2020 5:09:35 PM

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DESIGNER:	
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ISSUE DATE:	
APPROVED BY:	
APPROVAL DATE:	

DIRECTOR
of
HOUSTON AIRPORT SYSTEM

Review/ Approval Category

AFR

ISSUED FOR REVIEW

SHEET SIZE: 22"x34" ANSI-D

SHEET NAME:	TRAFFIC CONTROL PLAN TCP ONE LANE CLOSURE PH 1 & 2 (TCP-15)
SHEET No.	XT420
SCALE:	NTS