CITY OF LAS VEGAS GRADING NOTES

1. IN THE EVENT THAT ANY UNFORESEEN CONDITIONS NOT COVERED BY THESE NOTES ARE ENCOUNTERED DURING GRADING OPERATIONS, THE OWNER/ENGINEER SHALL BE IMMEDIATELY NOTIFIED FOR DIRECTION.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ALL NECESSARY CUTS AND FILLS WITHIN THE LIMITS OF THIS PROJECT AND THE RELATED OFF-SITE WORK, SO AS TO GENERATE THE DESIRED SUBGRADE, FINISH GRADES AND SLOPES SHOWN.
3. CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ALL EXCAVATION. ADEQUATE SHORING SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR TO PREVENT UNDERMINING OF ANY ADJACENT FEATURES OR FACILITIES AND/OR CAVING OF THE EXCAVATION.
4. THE CONTRACTOR IS WARNED THAT AN EARTHWORK BALANCE WAS NOT NECESSARILY THE INTENT OF THIS PROJECT. ANY ADDITIONAL MATERIAL REQUIRED OR LEFTOVER MATERIAL FOLLOWING EARTHWORK OPERATIONS BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE GRADING CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER TO PROVIDE FOR THE REQUIREMENTS OF THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ASSOCIATED PERMIT.
6. CONTRACTOR SHALL GRADE TO THE LINES AND ELEVATIONS SHOWN ON THE PLANS WITHIN THE FOLLOWING HORIZONTAL AND VERTICAL TOLERANCES AND DEGREES OF COMPACTION, IN THE AREAS INDICATED:

	HORIZONTAL	VERTICAL	COMPACTION
A. PAVEMENT AREA SUBGRADE	0.1'±	+0.0' TO -0.1'	SEE SOILS REPORT
B. ENGINEERED FILL	0.5'±	+0.1' TO -0.1'	SEE SOILS REPORT

COMPACTION TESTING WILL BE PERFORMED BY THE OWNER OR HIS REPRESENTATIVE. COMPACTION SHALL COMPLY WITH THE REQUIREMENTS OF THE ENGINEER.

7. ALL CUT AND FILL SLOPES SHALL BE PROTECTED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED.
8. THE USE OF POTABLE WATER WITHOUT A SPECIAL PERMIT FOR BUILDING OR CONSTRUCTION PURPOSES INCLUDING CONSOLIDATION OF BACKFILL OR DUST CONTROL IS PROHIBITED. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR CONSTRUCTION WATER.
9. THE CONTRACTOR SHALL MAINTAIN THE STREETS, SIDEWALKS AND ALL OTHER PUBLIC RIGHT- OF-WAY IN A CLEAN, SAFE AND USABLE CONDITION. ALL SPILLS OF SOIL, ROCK OR CONSTRUCTION DEBRIS SHALL BE PROMPTLY REMOVED FROM THE PUBLICLY OWNED PROPERTY DURING CONSTRUCTION AND UPON COMPLETION OF THE PROJECT. ALL ADJACENT PROPERTY, PRIVATE OR PUBLIC SHALL BE MAINTAINED IN A CLEAN, SAFE AND USABLE CONDITION.
10. IN THE EVENT THAT ANY TEMPORARY CONSTRUCTION ITEM IS REQUIRED THAT IS NOT SHOWN ON THESE DRAWINGS, SUCH ITEM SHALL BE PROVIDED, AS DIRECTED BY THE CITY ENGINEER, AT NO EXPENSE TO THE CITY OF LAS VEGAS. TEMPORARY CONSTRUCTION INCLUDES DITCHES, BERMS, ROAD SIGNS AND BARRICADES, ETC.

REVISED 4/15/10

STORMWATER RUNOFF MANAGEMENT

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO, OR ACCUMULATE IN, THE PUBLIC RIGHTS OF WAYS OF THE CITY OF LAS VEGAS AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN THE CITY OF LAS VEGAS AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BEST MANAGEMENT PRACTICES MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY; REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.5.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY ACTUAL RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STORMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTIONS MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A.12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

CITY OF LAS VEGAS GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE "UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OFF-SITE IMPROVEMENTS, CLARK COUNTY AREA NEVADA", LATEST ISSUE; THE "UNIFORM STANDARD DRAWINGS FOR PUBLIC WORKS CONSTRUCTION, CLARK COUNTY AREA NEVADA", LATEST REVISED EDITION; THE "SUMMERLIN IMPROVEMENT STANDARDS" FOR WORK IN THE SUMMERLIN AREA; AND OTHER APPLICABLE APPROVED STANDARDS ISSUED BY THE CONTROLLING AGENCY; THE UNIFORM BUILDING CODE; AND ALL LOCAL CITY CODES AND ORDINANCES APPLICABLE, EXCEPT AS NOTED ON THIS SHEET AS "DEVIATIONS FROM STANDARDS".
2. THE EXISTENCE AND LOCATION OF ANY OVERHEAD OR UNDERGROUND UTILITY LINES, PIPES, OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED BY A RESEARCH OF THE AVAILABLE RECORDS. EXISTING UTILITIES AS SHOWN FROM CLV PLANS LIBRARY ARE APPROXIMATE AND FOR RECORD PURPOSES. EXISTING UTILITIES ARE LOCATED ON PLANS ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. EXISTING UTILITY SERVICE LATERALS MAY NOT BE SHOWN ON THE PLANS. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, LOCATE ALL UNDERGROUND AND OVERHEAD INTERFERENCE'S WHICH MAY AFFECT HIS OPERATION DURING CONSTRUCTION AND SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGE TO SAME. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN WORKING NEAR OVERHEAD UTILITIES SO AS TO SAFELY PROTECT ALL PERSONNEL AND EQUIPMENT, AND SHALL BE RESPONSIBLE FOR ALL COST AND LIABILITY IN CONNECTION THEREWITH.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING UTILITY LINES, STRUCTURES AND STREET IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE, FROM DAMAGE, AND ALL SUCH IMPROVEMENTS OR STRUCTURES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED OR REPLACED SATISFACTORY TO THE CITY ENGINEER AND OWNING UTILITY COMPANY AT THE EXPENSE OF THE CONTRACTOR.
4. ALL CONSTRUCTION SHALL BE AS SHOWN ON THESE PLANS, ANY REVISIONS SHALL HAVE THE PRIOR WRITTEN APPROVAL OF THE CITY ENGINEER.
5. TYPE V CEMENT SHALL BE USED IN ALL OFF-SITE CONCRETE WORK. CONCRETE TO BE 3000 P.S.I. MINIMUM @ 28 DAYS. MIX DESIGNS TO BE APPROVED BY THE CITY, PRIOR TO THE USE ON THE PROJECT.
6. PERMITS ARE REQUIRED FOR ANY WORK IN THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL SECURE ALL PERMITS AND INSPECTIONS REQUIRED FOR THIS CONSTRUCTION.
7. EXPANSION JOINTS REQUIRED, MAXIMUM EVERY 300' IN EXTRUDED-TYPE CURB.
8. AC PAVEMENT TO BE ONE-HALF INCH (½") ABOVE LIP OF ALL GUTTERS AFTER COMPACTION, EXCEPT AT SIDEWALK RAMPS AND CROSS GUTTERS.
9. CURB AND GUTTER FOUND TO BE UNACCEPTABLE TO THE CITY OF LAS VEGAS SHALL BE REMOVED AND REPLACED PER STANDARD DRAWING 216.
10. SIDEWALK RAMPS SHALL BE CONSTRUCTED IN EACH QUADRANT OF AN INTERSECTION PER STANDARD DRAWING 235. EXACT LOCATION OF RAMPS MAY BE ADJUSTED IN THE FIELD BY A CITY INSPECTOR.
11. CONTRACTOR SHALL PROVIDE ALL NECESSARY HORIZONTAL AND VERTICAL TRANSITIONS BETWEEN NEW CONSTRUCTION AND EXISTING SURFACES TO PROVIDE FOR PROPER DRAINAGE AND FOR INGRESS AND EGRESS TO NEW CONSTRUCTION. THE EXTENT OF THE TRANSITIONS TO BE AS SHOWN ON PLANS.
12. ALL GRADING WORK SHALL CONFORM TO THE SOILS REPORT AS PREPARED BY NOVA GEOTECHNICAL & INSPECTION SERVICES, PROJECT NUMBER E-15-086, MAY 21, 2015, APPROVED BY THE CITY ENGINEER, AND AS SHOWN ON THESE PLANS.
13. EXACT LOCATION OF ALL SAWCUT LINES MAY BE ADJUSTED OR DETERMINED IN THE FIELD BY A CITY OF LAS VEGAS ENGINEER IF LOCATION ON PLANS IS NOT CLEARLY SHOWN, OR EXISTING PAVEMENT CONDITION REQUIRES RELOCATIONS.
14. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT EXISTING PERMANENT SURVEY MONUMENTS. ANY MONUMENTS DISTURBED SHALL BE REPLACED AND ADJUSTED PER AVAILABLE RECORDS IN ACCORDANCE WITH N.R.S. STATUTE NO. 625.380 & CITY OF LAS VEGAS TITLE 18, APPENDIX D.
15. UTILITY COMPANY METER BOXES, MANHOLE LIDS, VALVE COVERS, ETC., SHALL BE LOCATED OUT OF DRIVEWAYS, DRIVEWAY APRONS, FLOWLINES, AND CROSS GUTTERS UNLESS WRITTEN APPROVAL IS GRANTED BY THE UTILITY COMPANY AND THE CITY ENGINEER.

WALL NOTES:

16. ALL WALLS, NEW OR EXISTING, ARE ONLY SHOWN ON CIVIL PLANS FOR THE PURPOSE OF REVIEWING GRADING RELATIONSHIPS; FLOOD CONTROL AND SIGHT DISTANCE AT INTERSECTIONS. NEW WALLS REQUIRE A SEPARATE PERMIT AND INSPECTION BY THE BUILDING DEPARTMENT.
17. ASPHALT MIX DESIGN MUST BE SUBMITTED AND APPROVED BY THE CITY ENGINEER PRIOR TO THE PLACEMENT OF ASPHALT WITHIN CITY RIGHT OF WAY.
18. CONTRACTOR SHALL ADJUST ALL NEW AND EXISTING INLETS, VALVE BOXES, MANHOLE RIMS, AND SEWER CLEAN OUTS, ETC. TO FINISH GRADE AS APPLICABLE WHETHER OR NOT THEY ARE SHOWN ON THE PLANS.
19. MATERIALS, HANDLING AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL BE IN ACCORDANCE WITH APPLICABLE SECTIONS OF NDOT OR THE CLARK COUNTY AREA SPECIFICATIONS (AS APPLICABLE) AND THE PLANS AND DETAILS SHOWN HEREON.
20. WHEN INSTALLING UNDERGROUND FACILITIES THAT REQUIRE UNDERGROUND LOCATING DEVICES SUCH AS MARKER BALLS, LOCATING RIBBON, ETC, THE CONTRACTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE OFFSITE INSPECTION AND TESTING CERTIFYING THAT ALL DEVICES HAVE BEEN PLACED AND VERIFIED TO BE IN GOOD WORKING CONDITION PRIOR TO THE CONSTRUCTION OF ANY ROAD BASE.
21. SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S) SHALL BE PROVIDED TO THE CITY PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION. THE MAP(S) SHALL INCLUDE THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES AND TRANSITION STRUCTURES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET, THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT--OF-WAY, AND STORM DRAIN MAIN ALIGNMENT, INCLUDING DEFLECTION POINTS. THE LOCATION SHALL BE DESCRIBED BY COORDINATES WHICH SHALL BE BASED ON THE OFFICIAL HORIZONTAL AND VERTICAL CONTROL NETWORKS OF THE CITY OF LAS VEGAS. A SEPARATE ELECTRONIC COMMA DELIMITED FILE FOR THE SANITARY SEWER AND STORM DRAIN COORDINATES SHALL ALSO ACCOMPANY THE SANITARY SEWER AND STORM DRAIN FINAL LOCATION MAP(S).

OR

~~SANITARY SEWER AND STORM DRAIN FACILITIES SHOWN ON THESE PLANS SHALL BE USED TO MEET THE REQUIREMENTS ON NRS 455 AND SHALL SHOW AT A MINIMUM THE HORIZONTAL AND VERTICAL (INVERT) LOCATION OF PUBLIC SEWER MANHOLES, STORM DRAIN MANHOLES, STORM DRAIN LATERALS AT THE CONNECTION TO THE STORM DRAIN MAIN AND AT THE CONNECTION TO A DROP INLET AND THE CONNECTION OF SEWER SERVICE LATERALS TO THE SEWER MAIN AND WHERE THE SEWER SERVICE LATERALS EXIT THE PUBLIC RIGHT-OF-WAY. ANY DEVIATIONS FROM THE INFORMATION SHOWN SHALL BE NOTED AND SUBMITTED AS A REVISION TO THE PLANS AND APPROVED PRIOR TO ACCEPTANCE OF FACILITY VIDEO INSPECTION.~~

22. CCTV VIDEO INSPECTION IS REQUIRED FOR ALL SEWER AND STORM DRAINS. THE CCTV VIDEO INSPECTIONS NEED TO BE PERFORMED PER THE DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEMS LATEST EDITION.
23. A SEPARATE BORING PERMIT IS REQUIRED FOR ALL BORING ACTIVITIES.

REVISED 02/03/15

FLOOD ZONE NOTE

NO PORTION OF THE SITE FALLS WITHIN A FEMA DESIGNATED SPECIAL FLOOD HAZARD AREA. SITE LOCATED ON PANEL 32003C2150E, DATED SEPTEMBER 27, 2002, TO REFLECT A LOMR. THIS PANEL SHOWS THAT THE PROJECT IS LOCATED WITHIN A ZONE X AND NOT LOCATED WITHIN A FEMA DESIGNATED 100-YEAR ZONE A OR SPECIAL FLOOD HAZARD AREA.

LEGEND

- PROPOSED UTILITIES
- EXISTING UTILITIES
- FUTURE UTILITIES
- SECTION LINE
- EASEMENT LINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- CENTERLINE
- 100 YR HYDRAULIC GRADE LINE (ULT)
- 100 YR HYDRAULIC GRADE LINE (INT)
- PROPOSED UTILITY (BY OTHERS)
- PROPOSED SEWER LINE W/MH
- FUTURE SEWER LINE W/MH
- EXISTING SEWER LINE W/MH
- EXISTING WATER LINE & GATE VALVE
- PROPOSED WATER LINE & GATE VALVE
- FUTURE WATER LINE & GATE VALVE
- 2" G — EXISTING GAS LINE
- 2-6" E — EXISTING UNDERGROUND ELECTRICAL
- CATV — EXISTING CABLE TV
- TEL — EXISTING TELEPHONE
- OHP — EXISTING OVERHEAD AND POWER POLES
- PROPOSED STORM DRAIN W/MH
- EXISTING STORM DRAIN W/MH
- FUTURE STORM DRAIN W/MH
- EXISTING SIDEWALK AND RAMP
- CONSTRUCT CURB DEPRESSION FOR FUTURE HANDICAP RAMP
- VIEW FENCE
- NEW ABANDONED PIPE
- EXISTING ABANDONMENT
- SAWCUT
- STEEL CASING
- APPROXIMATE PAVEMENT RESTORATION
- TO BE ABANDONED PROFILE HATCH
- WATER STUB WITH BLOW-OFF
- FUTURE WATER STUB WITH BLOW-OFF
- SEWER STUB WITH CAP
- FUTURE SEWER STUB WITH CAP
- EDGE OF PAVEMENT — OUTSIDE EDGE
- O — CUT LIMIT LINE
- F — FILL LIMIT LINE
- 1 / CD1 — DRAWING NUMBER FOR DETAIL W/ REF. TO THE SHEET WHERE IT IS SHOWN
- XX / YYY — STANDARD DRAWING NUMBER / GOVERNING AGENCY
- BENCHMARK
- POTHOLE LOCATION
- EXISTING NVR RS-100
- EXISTING DROP INLET
- PROPOSED DROP INLET
- FUTURE DROP INLET
- EXISTING GATE VALVE
- PROPOSED GATE VALVE
- FUTURE GATE VALVE
- EXISTING WATER METER
- PROPOSED WATER METER
- EXISTING TRAFFIC SIGNAL PULL BOX
- PROPOSED SIGNAL PULLBOX
- EXISTING TELEPHONE MANHOLE
- EXISTING POWER POLE
- EXISTING ELEC MARKER
- EXISTING TRAFFIC SIGNAL
- PROPOSED TRAFFIC SIGNAL
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- FUTURE FIRE HYDRANT
- EXISTING UTILITY BOX
- EXISTING METER BOX
- 3005 — PROPOSED CONTOUR
- (3005) — EXISTING CONTOUR
- 60.50 TC — SPOT ELEVATION
- (60.50) TC — EXISTING SPOT ELEVATION
- FUTURE SPOT ELEVATION
- EXISTING CLARK COUNTY STREET LIGHT (STLT)
- 1.00% — ROAD SLOPE
- EXISTING SUMMERLIN STREET LIGHT (STLT)
- PROPOSED SUMMERLIN STREET LIGHT (STLT)
- TOP SLOPE / TOE SLOPE — 3:1 SLOPE UNLESS OTHERWISE NOTED ON PLAN

ABBREVIATIONS

A	AIR	FH	FIRE HYDRANT	RCB	REINFORCED CONCRETE BOX
AC	ASPHALT CONCRETE, ACRE	FL	FLOW LINE	RCP	REINFORCED CONCRETE PIPE
ACP	ASBESTOS CEMENT PIPE	FO	FIBER OPTIC	RD	ROAD
ADD'L	ADDITIONAL	FRP	FIBERGLASS REINFORCED PLASTIC	RDWY	ROADWAY
AP	ANGLE POINT	FS	FINISH SURFACE	REC	RECTANGULAR
APN	ASSESSOR'S PARCEL NUMBER	FT	FOOT/FEET	REF	REFERENCE
APPROX	APPROXIMATELY	FTG	FOOTING	REINF	REINFORCED
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	FUT	FUTURE	REQD	REQUIRED
		G	GAS	RIM	TOP OF RIM ELEVATION
		GA	GAGE, GUY ANCHOR	RND	ROUND
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	GB	GRADE BREAK	ROW,R/W	RIGHT OF WAY
		GND	GROUND	RP	RADIUS POINT
AVE	AVENUE	GRD	GRADE, GROUND	RPM	RAISED PAVEMENT MARKERS
AVAR	AIR VALVE, AIR RELEASE ASSEMBLY	H, HGT	HEIGHT	RSGV	RESILIENT SEAT GATE VALVE
		HDWL	HEADWALL	S	SOUTH
AWWA	AMERICAN WATER WORKS ASSOCIATION	HGL	HYDRAULIC GRADE LINE	SCH	SCHEDULE
		HORIZ	HORIZONTAL	SD	STORM DRAIN
BC	BACK OF CURB	HP	HIGH POINT, HIGH PRESSURE	SDMH	STORM DRAIN MANHOLE
BCR	BEGIN CURB RETURN	HPS	HIGH PRESSURE SODIUM	SECT	SECTION
BLM	BUREAU OF LAND MANAGEMENT	IBC	INTERNATIONAL BUILDING CODE	SF	SQUARE FOOT/FEET
BLVD	BOULEVARD	INV	INVERT	SHLDR	SHOULDER
BM	BENCHMARK	INT	INTERIM	SHT	SHEET
BO	BLOW-OFF	JT	JOINT	SIS	SUMMERLIN IMPROVEMENT STANDARDS
BVCE	BEGIN VERTICAL CURVE ELEVATION	L	LENGTH		
BVCS	BEGIN VERTICAL CURVE STATION	L, LT	LEFT	SL	STREET LIGHT
BW	BACK OF SIDEWALK	LF	LINEAR FEET	SP	SERVICE POINT
℄	CENTERLINE	LIP	LIP OF GUTTER	SQ	SQUARE
C&G	CURB AND GUTTER	LN	LANE	SR	SEWER RECLAIM MAIN
CATV	UNDERGROUND CABLE TV	LP	LIGHT POLE	SS	SANITARY SEWER
CCBM	CLARK COUNTY BENCH MARK	LSCP	LANDSCAPE	SSMH	SANITARY SEWER MANHOLE
CCPW	CLARK COUNTY PUBLIC WORKS	LVWWD	LAS VEGAS VALLEY WATER DISTRICT	STA	STATION
CCTV	CLOSED-CIRCUIT TELEVISION	MAX	MAXIMUM	ST	STREET
CCWRD	CLARK COUNTY WATER RECLAMATION DISTRICT	MH	MANHOLE	STD	STANDARD
		MIN	MINIMUM	STL	STEEL
CFS	CUBIC FEET PER SECOND	MLCP	MORTAR LINED AND COATED PIPE	STRUCT	STRUCTURE
CIP	CAPITAL IMPROVEMENTS PROJECT, CORRUGATED IRON PIPE	MP	MESA PARK	SVZ	SIGHT VISIBILITY ZONE
		MOD	MODIFY/MODIFIED	SW	SIDEWALK
	CAST IN PLACE	MON	MONUMENT	SWG	SOUTHWEST GAS
CIPM	CAST-IN-PLACE MANHOLE	MPH	MILES PER HOUR	T	TELEPHONE OR TOP
CIPP	CAST-IN-PLACE PIPE	N	NORTH	TAN	TANGENT
CIR	CIRCLE	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION	TB	TOP OF BERM
CLR	CLEAR OR CLEARANCE			TC	TOP OF CURB
CLSM	CONTROLLED LOW STRENGTH MATERIAL	NO	NUMBER	TCE	TEMPORARY CONSTRUCTION ESMT
		NOSHA	STATE OF NEVADA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION	TEL,TELE	TELEPHONE
CLV	CITY OF LAS VEGAS			TEMP	TEMPORARY
CMP	CORRUGATED METAL PIPE			TF	TOP OF FOOTING
CMU	CONCRETE MASONRY UNIT	NVE	NEVADA ENERGY	TG	TOP OF GRATE
CNLV	CITY OF NORTH LAS VEGAS	NTS	NOT TO SCALE	TMH	TOP OF MANHOLE
CO	CLEANOUT	OB	OVERBUILD	TOP	TOP OF PIPE
CONC	CONCRETE	OC	ON CENTER	TP	TELEPHONE POLE
COND	CONDUIT	OHC	OVERHEAD COX COMMUNICATION	TRANS	TRANSITION
CONST	CONSTRUCT OR CONSTRUCTION	OHP	OVERHEAD POWER LINE	TRW	TOP OF RETAINING WALL
COORD	COORDINATE	P	POWER LINE	TS	TRAFFIC SIGNAL
COR	CORNER	PB	PULL BOX	TW	TOP OF WALL
CPEP	CORRUGATED POLYETHELYNE PIPE	PBS	PLANTMIX BITUMINOUS SURFACE	TYP,(TYP)	TYPICAL
CT	COURT	PC	POINT OF CURVE, PRESSURE CLASS	UDACS	UNIFORM DESIGN AND CONSTRUCTION STANDARDS FOR WATER DISTRIBUTION SYSTEMS (LATEST EDITION)
CY	CUBIC YARD(S)				
Δ	DELTA	PCC	POINT OF COMPOUND CURVE		
DBL	DOUBLE	PE	PROJECT ENGINEER OR POLYETHYLENE		
WES	DESIGN AND CONSTRUCTION STANDARDS FOR WASTEWATER COLLECTION SYSTEM (LATEST EDITION)			UG	UNDERGROUND
		PED	PEDESTRIAN	ULT	ULTIMATE
		POL	PROFILE GRADE LINE	USD	UNIFORM DESIGN AND CONSTRUCTION STANDARDS
		PH	POTHOLE		
DEFL	DEFLECTION	PI	POINT OF INTERSECTION	USDCCA	UNIFORM STD. DRAWINGS FOR PUBLIC WORKS' CONSTRUCTION OFF-SITE IMPROVEMENTS CLARK COUNTY AREA, NEVADA (LATEST EDITION)
DG	DESIGN GRADE	PIV	POST INDICATOR VALVE		
DIA, ø	DIAMETER	℄	PROPERTY LINE		
DIP	DUCTILE IRON PIPE	PLCP	POLYURETHANE LINED AND COATED STEEL PIPE		
DIST	DISTANCE				
DR	DRIVE	PMF	PAVEMENT MARKING FILM		
DS	DOWNSPOUT	POB	POINT OF BEGINNING	UT	UNDERGROUND TELEPHONE
DTL	DETAIL	POC	POINT ON CURVE	VAR	VARIABLE/VARIES
DW	DRIVEWAY	P.O.C.	POINT OF CONNECTION	VC	VERTICAL CURVE
DWG	DRAWING	POT	POINT ON TANGENT	VCP	VITRIFIED CLAY PIPE
E	EAST	PP	POWER POLE	VERT	VERTICAL
ECR	END CURB RETURN	PROP	PROPOSED	VG	VALLEY GUTTER
ELE,ELEC	ELECTRICAL	PRC	POINT OF REVERSE CURVE	VOL	VOLUME
ELEV	ELEVATION	PRVC	POINT OF REVERSE VERTICAL CURVE	W	WATER, WEST
EP, EOP	EDGE OF PAVEMENT	PSF	POUNDS PER SQUARE INCH	W/	WITH
ESMT	EASEMENT	PSI		WOTUS	WATERS OF THE UNITED STATES
EVC	END VERTICAL CURVE	PT	POINT OF TANGENCY	WS	WATER SUPPLY
EXIST,EX	EXISTING	PVC	POLYVINYL CHLORIDE	WT	WEIGHT
EXP	EXPANSION JOINT	PVI	POINT OF VERTICAL INTERSECTION	WTR	WATER
FC	FACE OF CURB	PVMT	PAVEMENT	XING	CROSSING
FF, FFE	FINISH FLOOR ELEVATION	PZ	PRESSURE ZONE	YD	YARD, YARD DRAIN
FG	FINISH GRADE	R, RAD	RADIAL, RADIUS	Z	PRESSURE ZONE
		R, RT	RIGHT		

DEVIATIONS FROM STANDARDS

1. NONE

NOTE

THIS SET OF DRAWINGS IS BASED UPON NAVD 88 DATUM. PREVIOUS DRAWINGS MAY BE BASED ON OTHER DATUM. CARE SHOULD BE OBSERVED WHEN UTILIZING THIS SET OF DRAWINGS

BASIS OF BEARINGS

SOUTH 89°47'23" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN IN FILE 118, PAGE 100 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. D368	U.S.C. & G.S. DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD & WEST OF DETENTION BASIN.	3246.63 (FEET)	989.574 (METERS)

Call before you Dig. Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2600 AND CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-6000

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD. 1-702-227-2929

FAST. Call before you UnderGround 1-702-432-5300. FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV # 107X6769

ENGINEER - STATE OF NEVADA — PROFESSIONAL ENGINEER No. 15704 — NICHOLAS J. POLUNCHENKO — STATE OF NEVADA — DATE: 1/20/17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	CCW APP

PROJECT NO. 62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 01-20-17
PLOT TIME: 08:43:27

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_NT.dwg
Matthew Burge

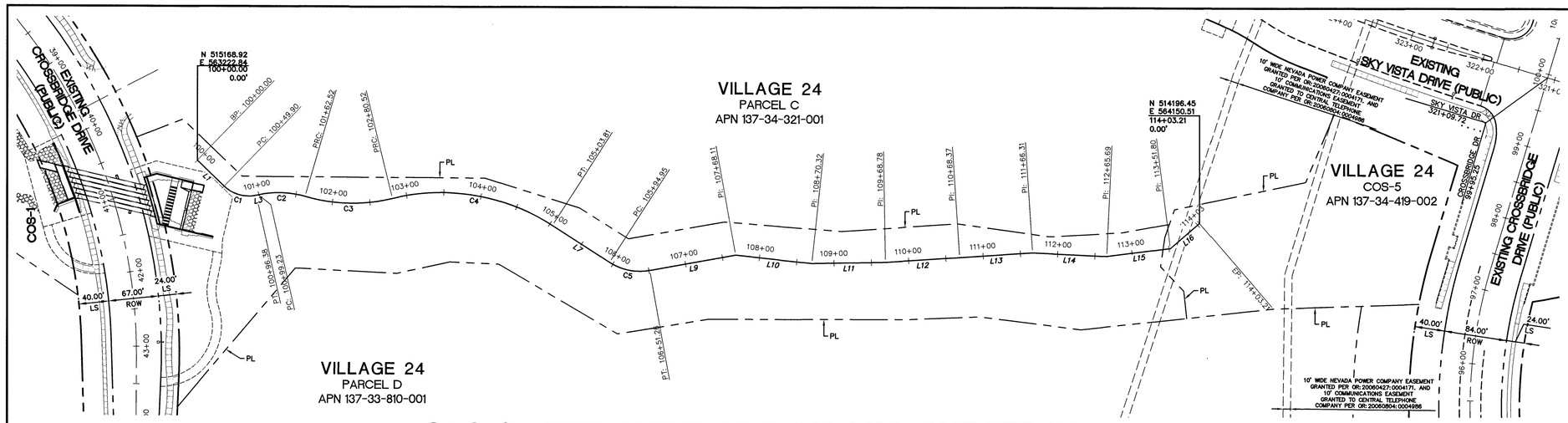
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GENERAL NOTES

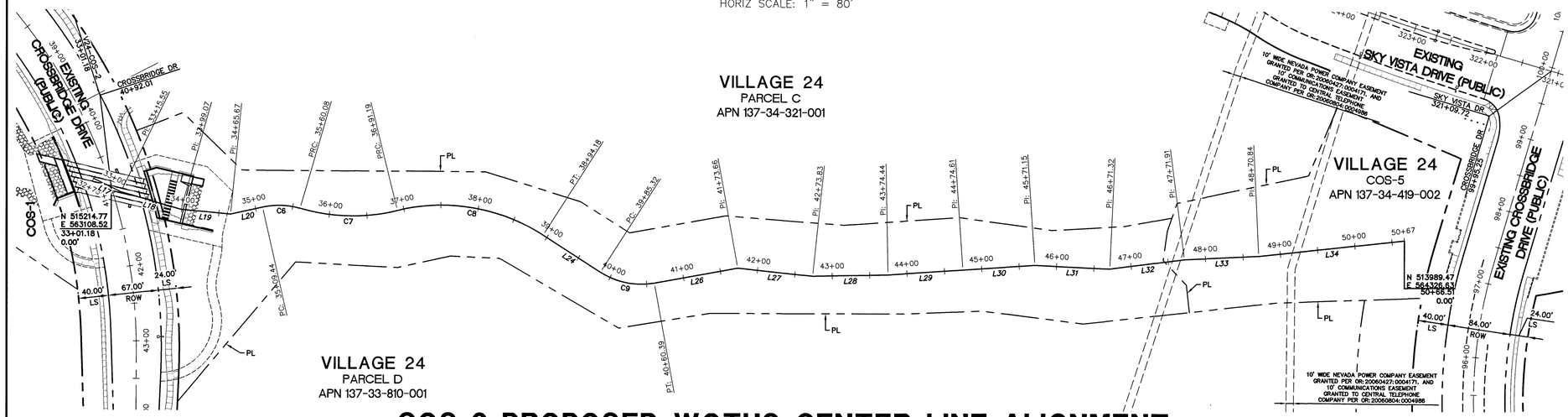
DRAWING 2
2 OF 16 SHTS

H#68365



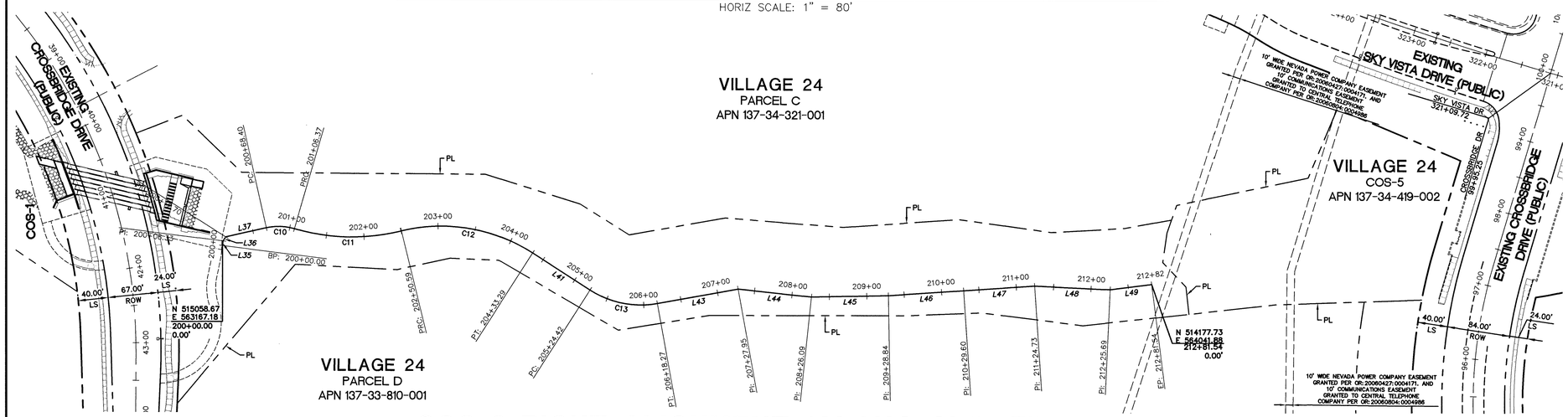
COS-2 LEFT ALIGNMENT (ALONG CUTOFF WALL)

HORIZ SCALE: 1" = 80'



COS-2 PROPOSED WOTUS CENTER LINE ALIGNMENT

HORIZ SCALE: 1" = 80'



COS-2 RIGHT ALIGNMENT (ALONG CUTOFF WALL)

HORIZ SCALE: 1" = 80'

CURVE TABLE

CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C1	46.48'	47.00'	25.34'	56°39'49"
C2	63.29'	125.00'	32.34'	29°00'43"
C3	118.00'	225.00'	60.39'	30°02'53"
C4	223.29'	275.00'	118.21'	46°31'21"
C5	56.31'	75.00'	29.56'	43°00'59"
C6	50.64'	100.00'	25.87'	29°00'43"
C7	131.11'	250.00'	67.10'	30°02'53"
C8	202.99'	250.00'	107.47'	46°31'21"
C9	75.08'	100.00'	39.41'	43°00'59"
C10	37.98'	75.00'	19.40'	29°00'43"
C11	144.22'	275.00'	73.81'	30°02'53"
C12	182.69'	225.00'	96.72'	46°31'21"
C13	93.85'	125.00'	49.26'	43°00'59"

LINE TABLE

LINE #	LENGTH	DIRECTION	LINE #	LENGTH	DIRECTION
L1	49.90'	S3°13'16"E	L28	100.61'	S48°09'13"E
L3	2.85'	S59°53'05"E	L29	100.17'	S50°54'13"E
L7	91.14'	S14°22'53"E	L30	96.54'	S50°50'41"E
L9	116.85'	S57°23'51"E	L31	100.17'	S44°27'28"E
L10	102.21'	S41°05'02"E	L32	100.59'	S54°26'16"E
L11	98.46'	S48°09'13"E	L33	98.93'	S49°42'13"E
L12	99.59'	S50°54'13"E	L34	195.67'	S53°09'23"E
L13	97.94'	S50°50'41"E	L35	6.33'	N49°55'36"E
L14	99.38'	S44°27'28"E	L36	6.36'	N75°07'57"E
L15	86.10'	S54°26'16"E	L37	55.70'	S59°52'03"E
L16	51.42'	S87°57'43"E	L41	91.14'	S14°22'53"E
L17	40.55'	S21°09'36"E	L43	109.68'	S57°23'51"E
L18	83.52'	S31°09'49"E	L44	98.13'	S41°05'02"E
L19	66.60'	S41°29'09"E	L45	102.75'	S48°09'13"E
L20	43.77'	S59°52'03"E	L46	100.76'	S50°54'13"E
L24	91.14'	S14°22'53"E	L47	95.13'	S50°50'41"E
L26	113.26'	S57°23'51"E	L48	100.96'	S44°27'28"E
L27	100.17'	S41°05'02"E	L49	55.85'	S54°26'16"E

NORTH

SCALE 80 0 80 160 FEET

NOTE

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BASIS OF BEARINGS

SOUTH 89°47'23" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN IN FILE 118, PAGE 100 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. D368	U.S.C. & G.S. DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD & WEST OF DETENTION BASIN.	3246.63 (FEET)	989.574 (METERS)

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV # 10716769

STATE OF NEVADA
ENGINEER
JOHN R. JOHNSON
No. 15879
PROFESSIONAL ENGINEER
DATE: 1/20/17

REV	DATE	DESCRIPTION	AGEN APP	DATE	CCW APP	DATE

PROJECT NO. 62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 01-20-17
PLOT TIME: 08:43:19

GCW
ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_HC.dwg
Matthew Burge

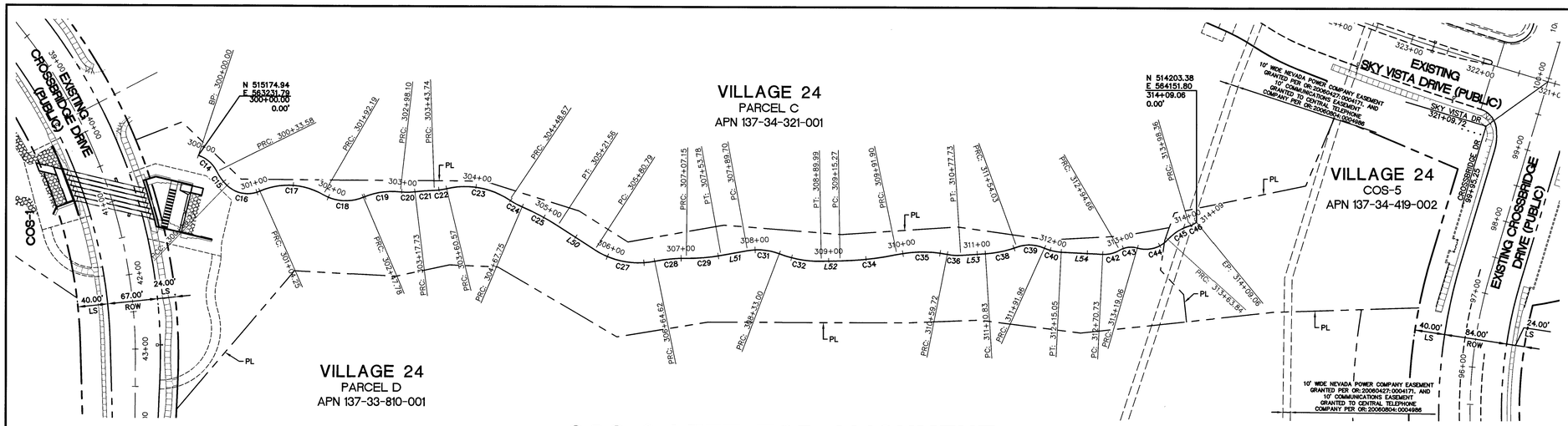
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

HORIZONTAL CONTROL PLAN 1

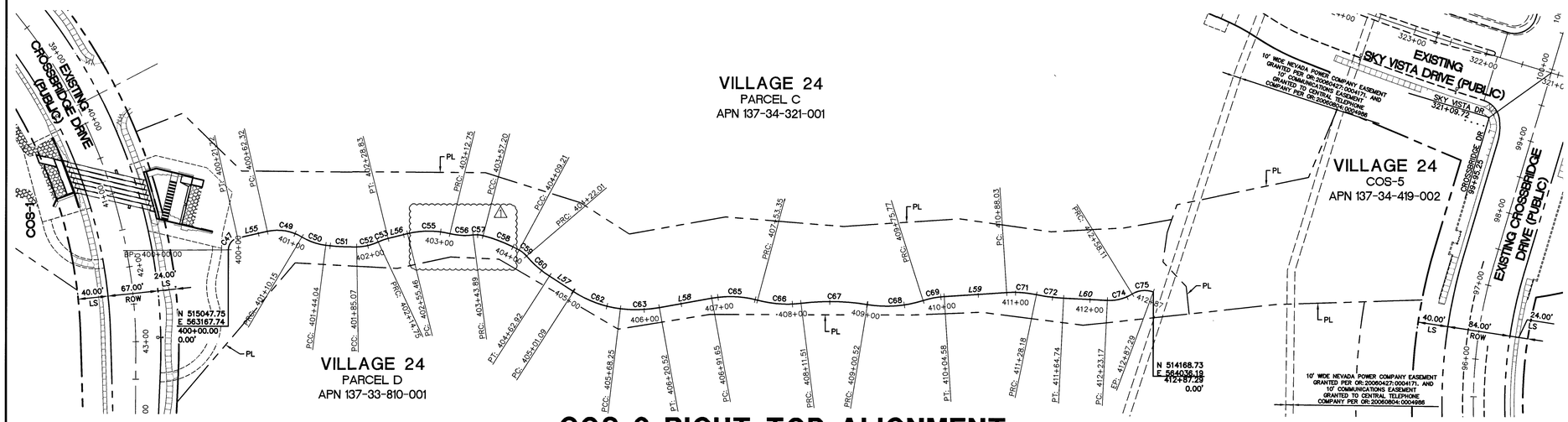
DRAWING
3
3 OF 16 SHTS

H#68365



COS-2 LEFT TOP ALIGNMENT

HORIZ SCALE: 1" = 80'



COS-2 RIGHT TOP ALIGNMENT

HORIZ SCALE: 1" = 80'

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C14	33.58'	42.52'	17.72'	45°14'50"
C15	23.19'	67.48'	11.71'	19°41'16"
C16	47.48'	40.00'	26.99'	68°00'55"
C17	87.94'	93.00'	47.57'	54°10'45"
C18	55.58'	60.00'	29.97'	53°04'42"
C19	50.33'	98.00'	25.73'	29°25'22"
C20	19.63'	84.00'	9.86'	13°23'13"
C21	26.01'	300.00'	13.01'	4°58'04"
C22	16.83'	84.00'	8.44'	11°28'42"
C23	88.10'	107.00'	46.72'	47°10'25"
C24	19.08'	103.00'	9.57'	10°36'53"
C25	53.81'	317.00'	26.97'	9°43'33"
C27	83.83'	108.00'	44.16'	44°28'30"
C28	42.53'	198.00'	21.35'	12°18'29"
C29	46.63'	245.00'	23.39'	10°54'19"

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C31	43.30'	80.00'	22.20'	31°00'45"
C32	56.99'	150.00'	28.84'	21°46'07"
C34	76.63'	408.00'	38.43'	10°45'42"
C35	67.82'	170.00'	34.37'	22°51'26"
C36	18.01'	70.00'	9.05'	14°44'16"
C38	43.20'	150.00'	21.75'	16°30'09"
C39	37.93'	49.00'	19.97'	44°20'59"
C40	23.09'	61.50'	11.68'	21°30'33"
C42	23.92'	41.50'	12.30'	33°01'37"
C43	24.40'	30.00'	12.92'	46°36'00"
C44	44.79'	40.00'	25.07'	64°09'11"
C45	34.52'	63.00'	17.70'	31°23'30"
C46	10.70'	27.00'	5.42'	22°42'22"
C47	21.72'	16.00'	12.91'	77°47'28"
C49	47.83'	63.00'	25.14'	43°30'07"

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C50	33.89'	82.00'	17.19'	23°40'59"
C51	41.03'	290.00'	20.55'	8°06'23"
C52	29.68'	70.00'	15.06'	24°17'23"
C53	14.09'	70.00'	7.07'	11°31'44"
C55	57.28'	120.00'	29.20'	27°21'04"
C56	31.14'	85.00'	15.75'	20°59'25"
C57	13.31'	34.50'	6.74'	22°06'11"
C58	52.01'	218.00'	26.13'	13°40'14"
C59	12.80'	34.50'	6.47'	21°15'11"
C60	40.91'	139.00'	20.61'	16°51'54"
C62	67.16'	148.00'	34.17'	26°00'00"
C63	52.27'	176.00'	26.33'	17°01'04"
C65	61.71'	140.00'	31.36'	25°15'11"
C66	58.16'	150.00'	29.45'	22°12'49"
C67	89.01'	310.00'	44.82'	16°27'07"

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C68	75.25'	160.00'	38.33'	26°56'45"
C69	28.81'	118.00'	14.48'	13°59'21"
C71	40.14'	149.00'	20.19'	15°26'09"
C72	36.57'	232.00'	18.32'	9°01'51"
C74	34.93'	58.00'	18.01'	34°30'33"
C75	29.19'	32.00'	15.70'	52°15'32"

LINE TABLE		
LINE #	LENGTH	DIRECTION
L50	59.23'	S14°19'31"E
L51	35.92'	S57°23'51"E
L52	25.27'	S48°09'13"E
L53	33.10'	S50°47'44"E
L54	55.68'	S44°27'28"E
L55	40.59'	S59°52'03"E
L56	26.63'	S60°54'13"E
L57	38.17'	S14°22'53"E
L58	71.12'	S57°23'51"E
L59	83.45'	S50°51'46"E
L60	58.43'	S44°27'28"E

NORTH

80 0 80 160
SCALE FEET

NOTE

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BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. D368	U.S.C. & G.S. DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD & WEST OF DETENTION BASIN.	3246.63 (FEET)	989.574 (METERS)

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

ENGINEER - STATE OF NEVADA
PROFESSIONAL ENGINEER
No. 15789
GCW, INC.
DATE: 7/7/17

REV	DATE	DESCRIPTION	DRAWN	CHK'D	DATE	AGEN APP	DATE	GCW APP
1	4/12/17	ADD PED. BRIDGE ABUTMENT/FOOTING GRADING & STRUCTURAL SHEET, ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES, ADJUST MATCHLINE, ADJUST COS-5 PAD ELEVATION, ADJUST MOUNDING LIMITS AND MOUNDING GRADING AROUND MAINTENANCE ROAD, ADJUST PARCEL C STORM DRAIN STUB.	MJL	SB				

PROJECT NO. 62024-232
DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:29:15

GCW
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
ENGINEERS SURVEYORS

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_HC.dwg
Lupe Gracia

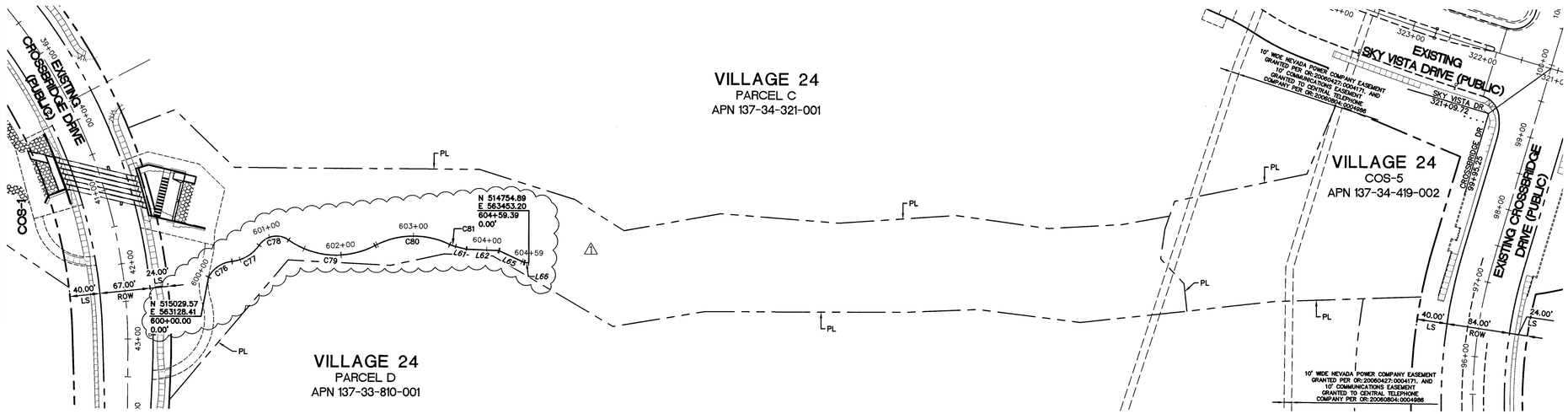
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

HORIZONTAL CONTROL PLAN 2

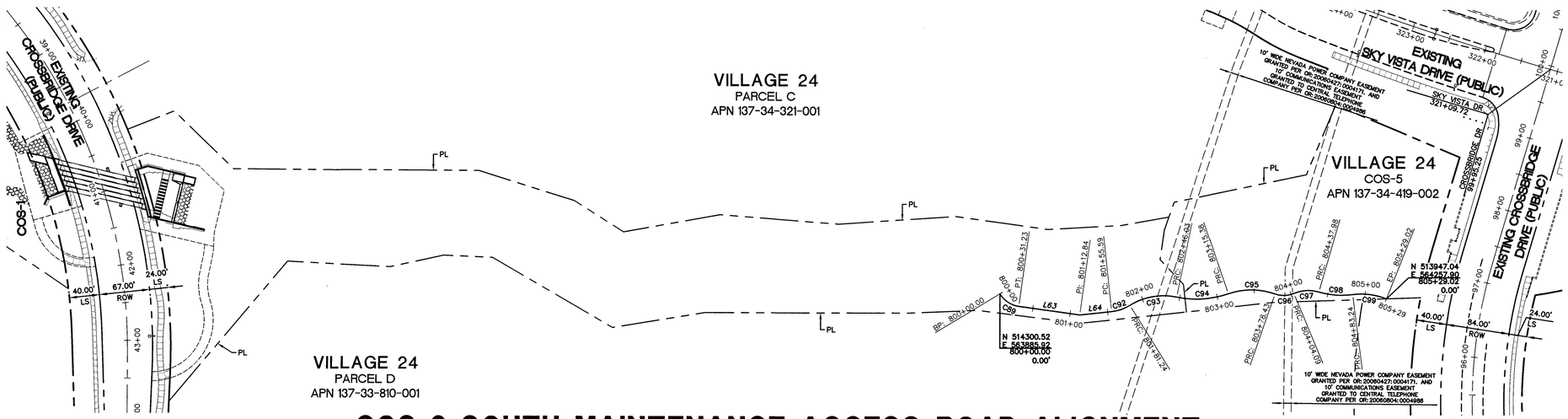
DRAWING
4
4 OF 19 SHTS

H#68365



COS-2 NORTH MAINTENANCE ACCESS ROAD ALIGNMENT

HORIZ SCALE: 1" = 80'



COS-2 SOUTH MAINTENANCE ACCESS ROAD ALIGNMENT

HORIZ SCALE: 1" = 80'

LINE TABLE		
LINE #	LENGTH	DIRECTION
L61	14.76'	S33°47'18"E
L62	43.35'	S44°41'48"E
L63	81.60'	S39°15'22"E
L64	42.75'	S53°21'26"E
L65	37.33'	S22°09'12"E
L66	5.72'	S46°06'42"E

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C76	38.99'	40.00'	21.20'	55°50'47"
C77	43.31'	50.00'	23.12'	49°37'44"
C78	44.22'	28.00'	28.24'	90°29'42"
C79	120.43'	110.00'	67.05'	62°43'46"
C80	103.11'	110.00'	55.69'	53°42'16"
C81	8.17'	37.00'	4.10'	12°38'47"
C89	31.23'	35.00'	16.74'	51°07'39"
C92	25.65'	57.00'	13.05'	25°47'10"
C93	64.79'	85.00'	34.06'	43°40'29"
C94	69.35'	130.00'	35.52'	30°33'58"

CURVE TABLE				
CURVE #	LENGTH	RADIUS	TANGENT	DELTA
C95	63.04'	94.50'	32.75'	38°13'27"
C96	25.66'	35.00'	13.44'	42°00'18"
C97	33.89'	50.00'	17.62'	38°49'58"
C98	45.26'	110.00'	22.96'	23°34'30"
C99	45.78'	90.00'	23.40'	29°08'48"

NORTH

SCALE 80 0 80 160 FEET

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BENCHMARK

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

REV	DATE	DESCRIPTION	DATE	AGEN. APP	DATE	GCW APP	DATE
1	4/12/17	ADD FFD, BRIDGE ADJUMENT FOOTING GRADING & ASSOCIATED RETAINING WALLS, & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST MOUNDING LIMITS AND MOUNDING GRADING. ADJUST MAINTENANCE ROAD. ADJUST PARCEL & STORM DRAIN STUB.	5/5/17	5/6			

PROJECT NO. 62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:30:26

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_HC.dwg
Lupe Grado

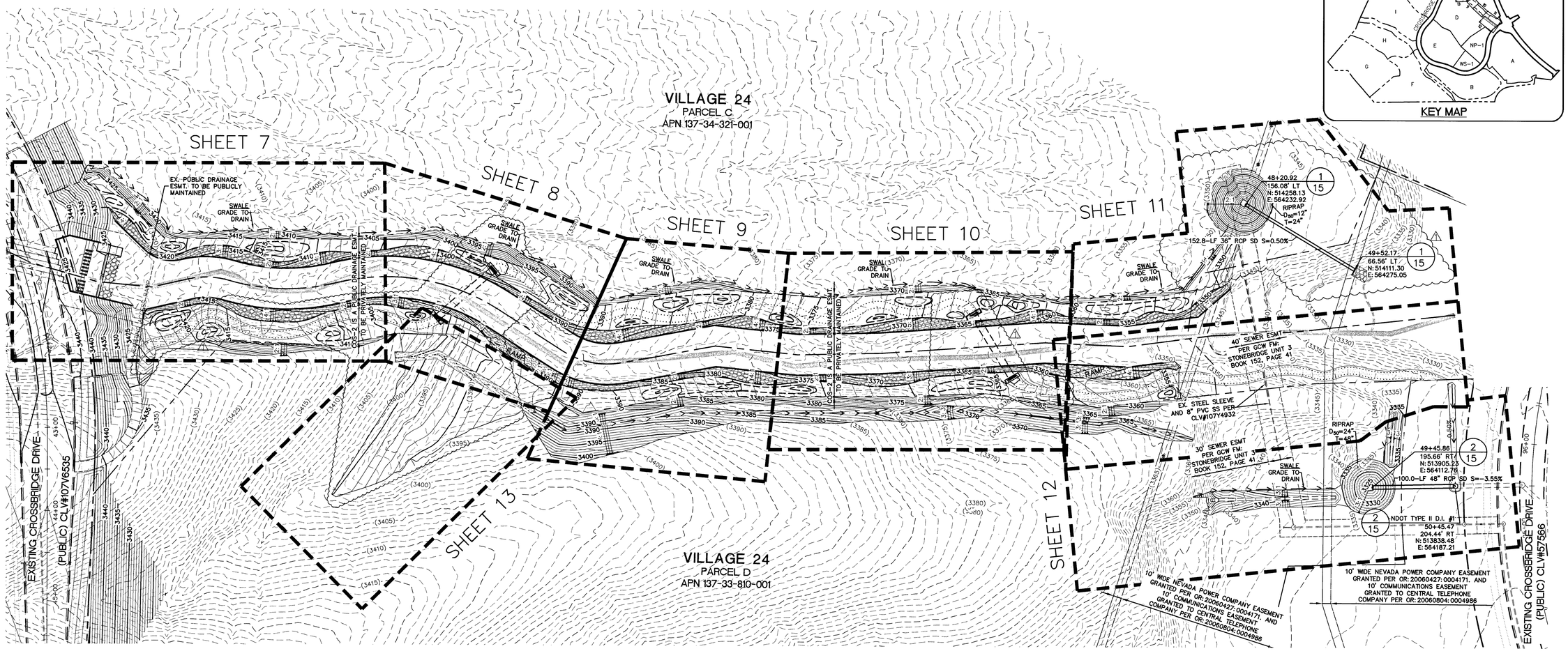
THE HOWARD HUGHES COMPANY, LLC

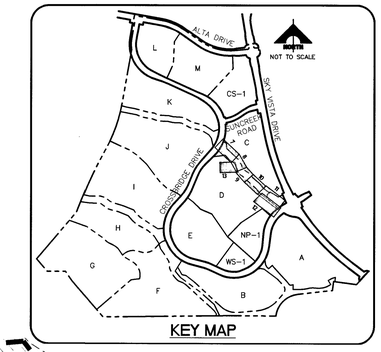
VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

HORIZONTAL CONTROL PLAN 3

DRAWING
5
5 OF 19 SHTS

H#68365





KEY MAP

COS-2 (WATERS OF THE US)

HORIZ SCALE: 1" = 60'

GRAVEL MAINTENANCE ROAD

2" CRUSHED ROCK/GRAVEL @ 95%

CONCRETE RAMP

6" THICK CONCRETE RAMP PER DETAIL 1 DRAWING 16.

NORTH

60 0 60 120
SCALE FEET

EARTHWORK QUANTITIES

CUT	5,400	CY
FILL	7,080	CY

QUANTITIES

36" RCP	153	LF
48" RCP	100	LF
NDOT TYPE II MANHOLE	1	EA
RIPRAP (D50=12")	497	CY
RIPRAP (D50=24")	450	CY
1' TO 4' GROUTED RIPRAP LARGE ROCK	2,930	CY
3' DEEP CUTOFF WALL	657	LF
5' DEEP CUTOFF WALL	1,014	LF
7' DEEP CUTOFF WALL	1,035	LF
12'X2" ROCK/GRAVEL MAINTENANCE ROAD	1,368	SY
CONCRETE RAMPS	64	CY
PEDESTRIAN BRIDGE ABUTMENTS/FOOTINGS	4	EA

RIPRAP GENERAL NOTE:
ALL RIPRAP, SHALL ADHERE TO REQUIREMENTS OF UNIFORM STANDARD SPECIFICATION SECTION 610 "SLOPE AND CHANNEL PROTECTION."

FOR GROUTED RIPRAP LARGE ROCK, SEE ADDITIONAL REQUIREMENTS TO SECTION 610 "SLOPE AND CHANNEL PROTECTION ADDITIONAL NOTES" PER DETAIL 3 SHEET 14.

COS WASH MAINTENANCE GENERAL NOTE:

HOA TO MAINTAIN DESIGN GRADES AND RIPRAP ALONG CUTOFF WALLS AFTER EVERY MEASURABLE STORM EVENT. IF THERE IS MEASURABLE RAINFALL DEPTH IN THE CCRFCD GAUGES 4329 AND 4344, THE COS WASH SHOULD BE INSPECTED BY HOA AFTER CESSATION OF THE STORM EVENT.

CCRFCD RAINFALL GAUGE 4329 IS LOCATED IN BROWNSTONE CANYON UPSTREAM OF VILLAGE 24.

CCRFCD RAINFALL GAUGE 4344 IS LOCATED IN THE RED ROCK DETENTION BASIN DOWNSTREAM OF VILLAGE 24.

NOTE

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BENCHMARK

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FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP
1	4/12/17	ADD RED. BRIDGE ABUTMENT/FOOTING GRADING & STRUCTURAL. SHEET. ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST GRADING NEAR CROSSBRIDGE DRIVE. ADD GRADING AROUND MAINTENANCE ROAD. ADJUST PARCEL C. STORM DRAIN STUB.	4/12/17	LJB		

PROJECT NO.
62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:34:04

GCW
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_G0.dwg
Lupe Oceda

ENGINEER - STATE OF NEVADA
JOHN L. JOHNSON
No. 15786
PROFESSIONAL ENGINEER
DATE: 7/7/17

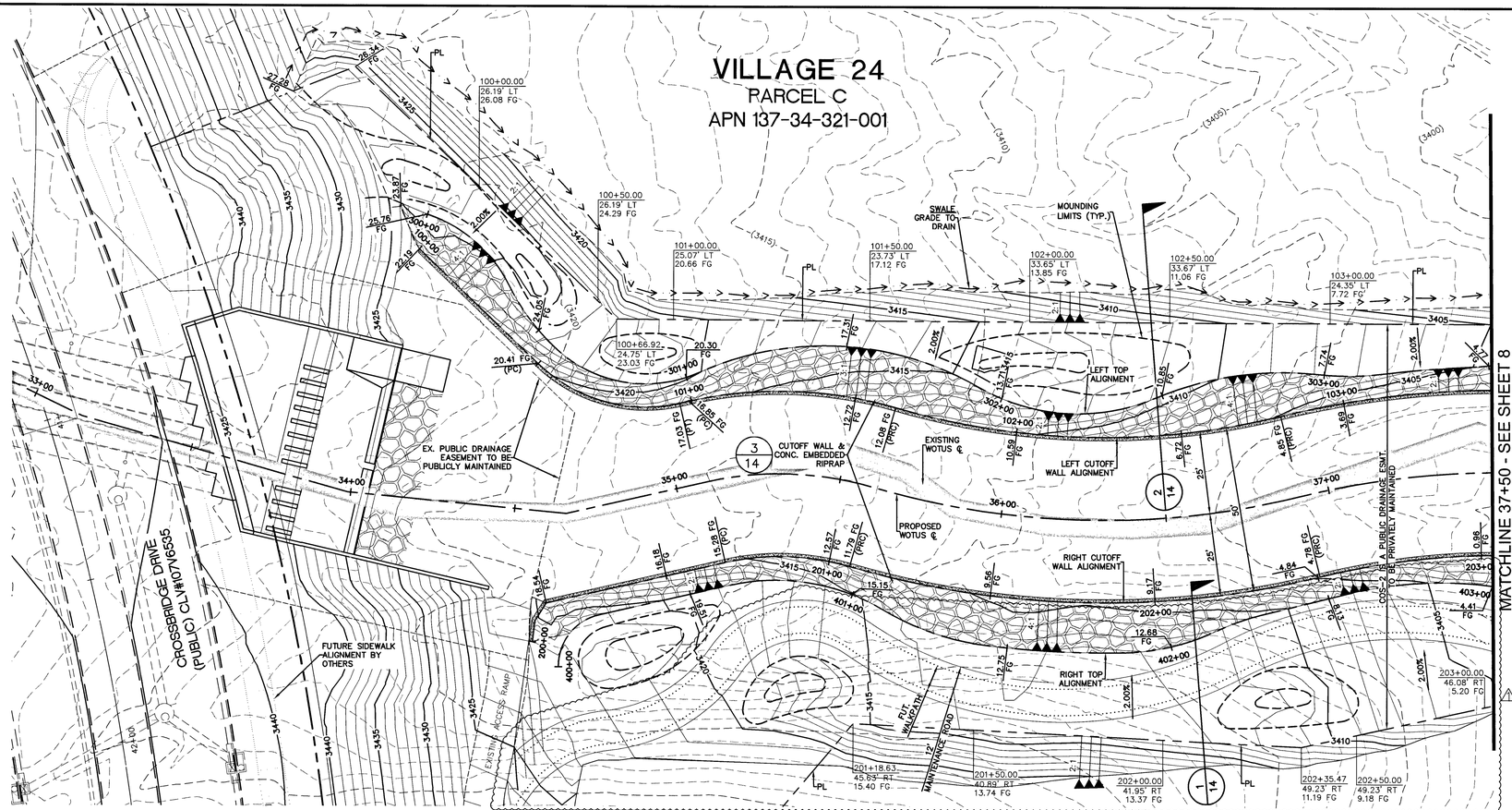
THE HOWARD HUGHES COMPANY, LLC

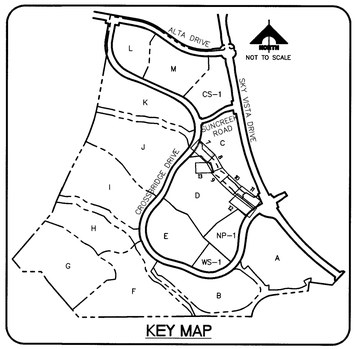
VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GRADING PLAN - OVERVIEW

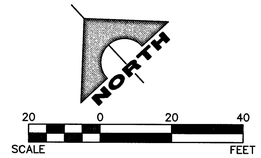
DRAWING
6
6 OF 19 SHTS

H#68365



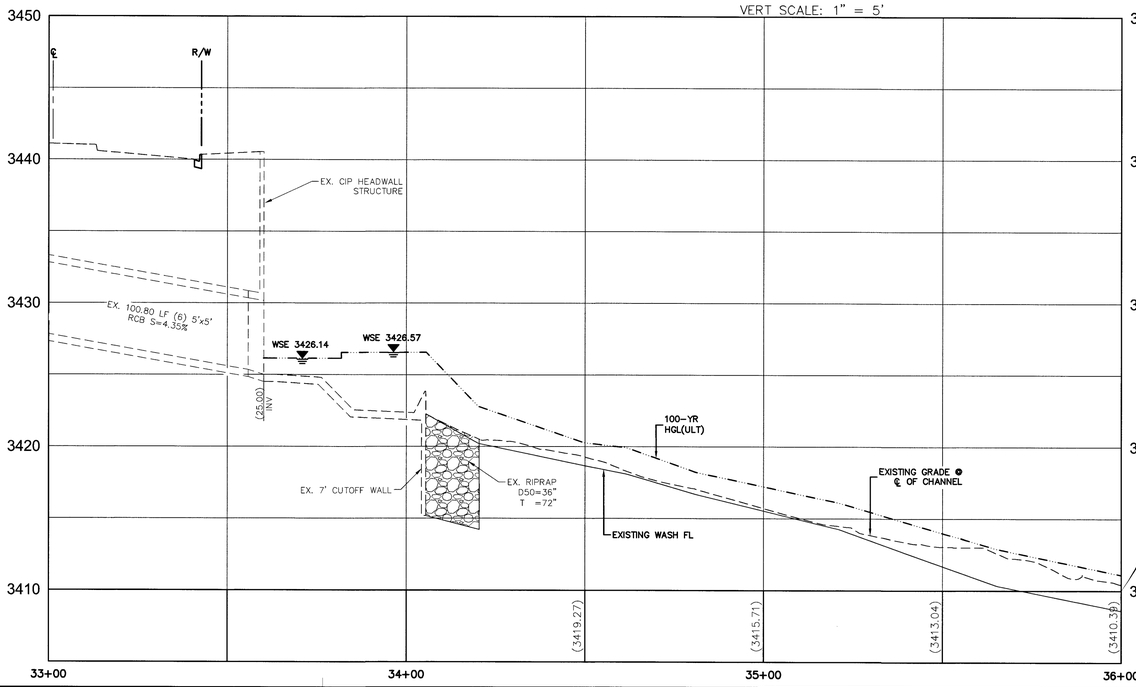


KEY MAP



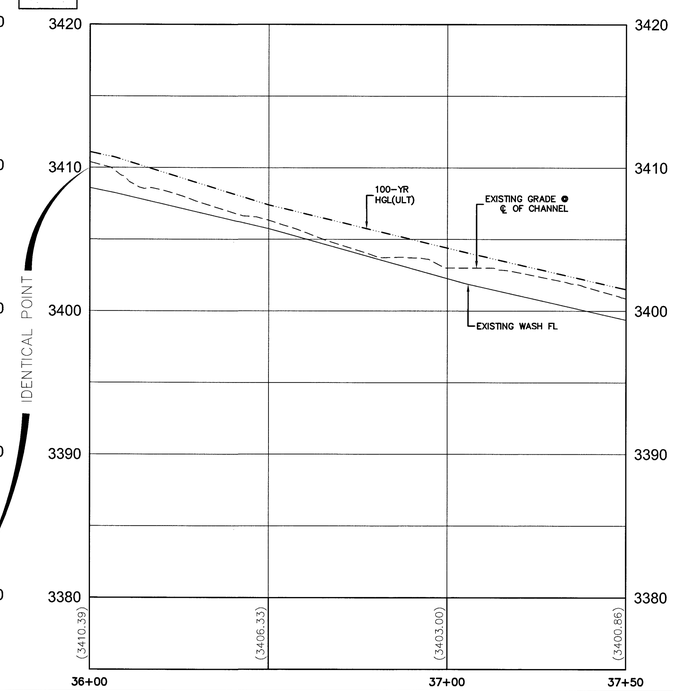
COS-2 (WATERS OF THE US)

HORIZ SCALE: 1" = 20'
VERT SCALE: 1" = 5'



IDENTICAL POINT

GRAVEL MAINTENANCE ROAD
2" CRUSHED ROCK/GRAVEL @ 95%



RIPRAP GENERAL NOTE:
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FOR GROUTED RIPRAP LARGE ROCK, SEE ADDITIONAL REQUIREMENTS TO SECTION 610 "SLOPE AND CHANNEL PROTECTION ADDITIONAL NOTES" PER DETAIL 3 SHEET 14.

COS WASH MAINTENANCE GENERAL NOTE:

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CCRFCD RAINFALL GAUGE 4329 IS LOCATED IN BROWNSTONE CANYON UPSTREAM OF VILLAGE 24.

CCRFCD RAINFALL GAUGE 4344 IS LOCATED IN THE RED ROCK DETENTION BASIN DOWNSTREAM OF VILLAGE 24.

NOTE

THIS SET OF DRAWINGS IS BASED UPON NAVD 88 DATUM. PREVIOUS DRAWINGS MAY BE BASED ON OTHER DATUM. CARE SHOULD BE OBSERVED WHEN UTILIZING THIS SET OF DRAWINGS

BASIS OF BEARINGS

SOUTH 89°47'23" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN IN FILE 118, PAGE 100 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. D368	U.S.C. & G.S. DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD & WEST OF DETENTION BASIN.	3246.63 (FEET)	989.574 (METERS)

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AND
CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-6000

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1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

STATE OF NEVADA PROFESSIONAL ENGINEER
JOSHUA J. JOHNSON
No. 15797
DATE: 7/7/17

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	AGEN APP	DATE	GCW APP	DATE
1	4/12/17	ADD PED. BRIDGE, ABUTMENT/FOOTING GRADING & STRUCTURAL SHEET, ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ROAD ALIGNMENT, ADJUST MOUNDING LIMITS AND MOUNDING GRADING AROUND MAINTENANCE ROAD, ADJUST PARCEL C STORM DRAIN STUB.	JJJ	JJJ					

PROJECT NO. 62024-232
DESIGN: MDB
DRAWN: MDB
CHECK: JJJ
PLOT DATE: 07-07-17
PLOT TIME: 10:34:47

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_C0.dwg
Lupe Gracia

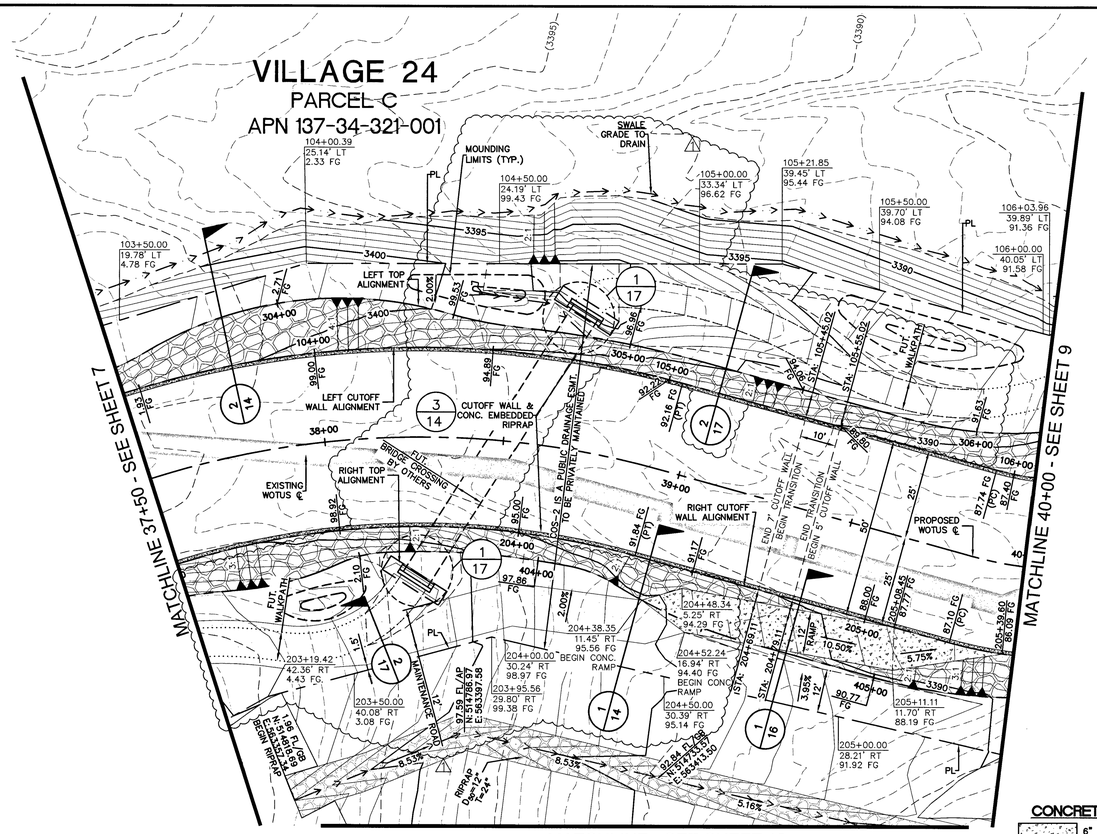
THE HOWARD HUGHES COMPANY, LLC

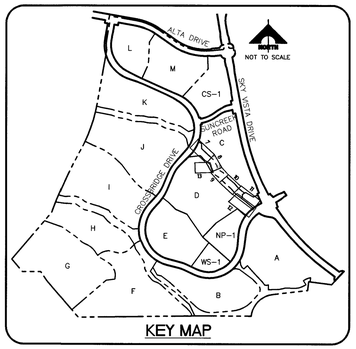
VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GRADING PLAN 1

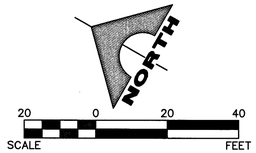
DRAWING 7
7 OF 19 SHTS

H#68365





KEY MAP



CONCRETE RAMP

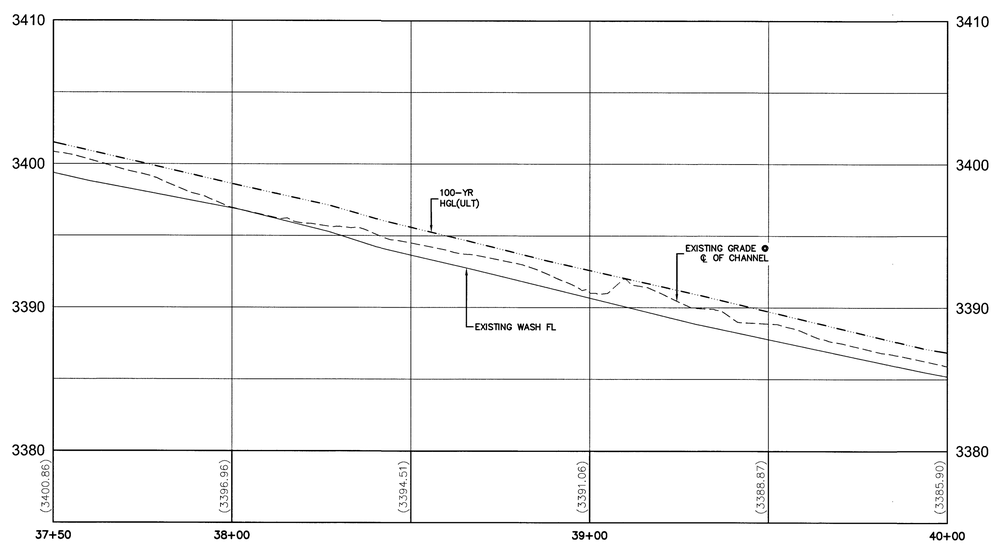
6" THICK CONCRETE RAMP PER DETAIL 1 DRAWING 16.

GRAVEL MAINTENANCE ROAD

2" CRUSHED ROCK/GRAVEL @ 95%

COS-2 (WATERS OF THE US)

HORIZ SCALE: 1" = 20'
VERT SCALE: 1" = 5'



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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

ENGINEER - STATE OF NEVADA
JOSHUA D. PRINSLOO
Date of Signature: 7/7/17
No. 15786
DATE 7/7/17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP
1	4/12/17	ADD PED. BRIDGE, ABUTMENT/FOOTING GRADING & STRUCTURAL SHEET. ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST MAINTENANCE ROAD ALIGNMENT AROUND. MAINTENANCE ROAD. ADJUST PARCEL C STORM DRAIN STUB.	7/13/17	SS		

PROJECT NO.
62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JJ
PLOT DATE: 07-07-17
PLOT TIME: 10:35:15

GCV
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
ENGINEERS \ SURVEYORS

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Lupe Garcia

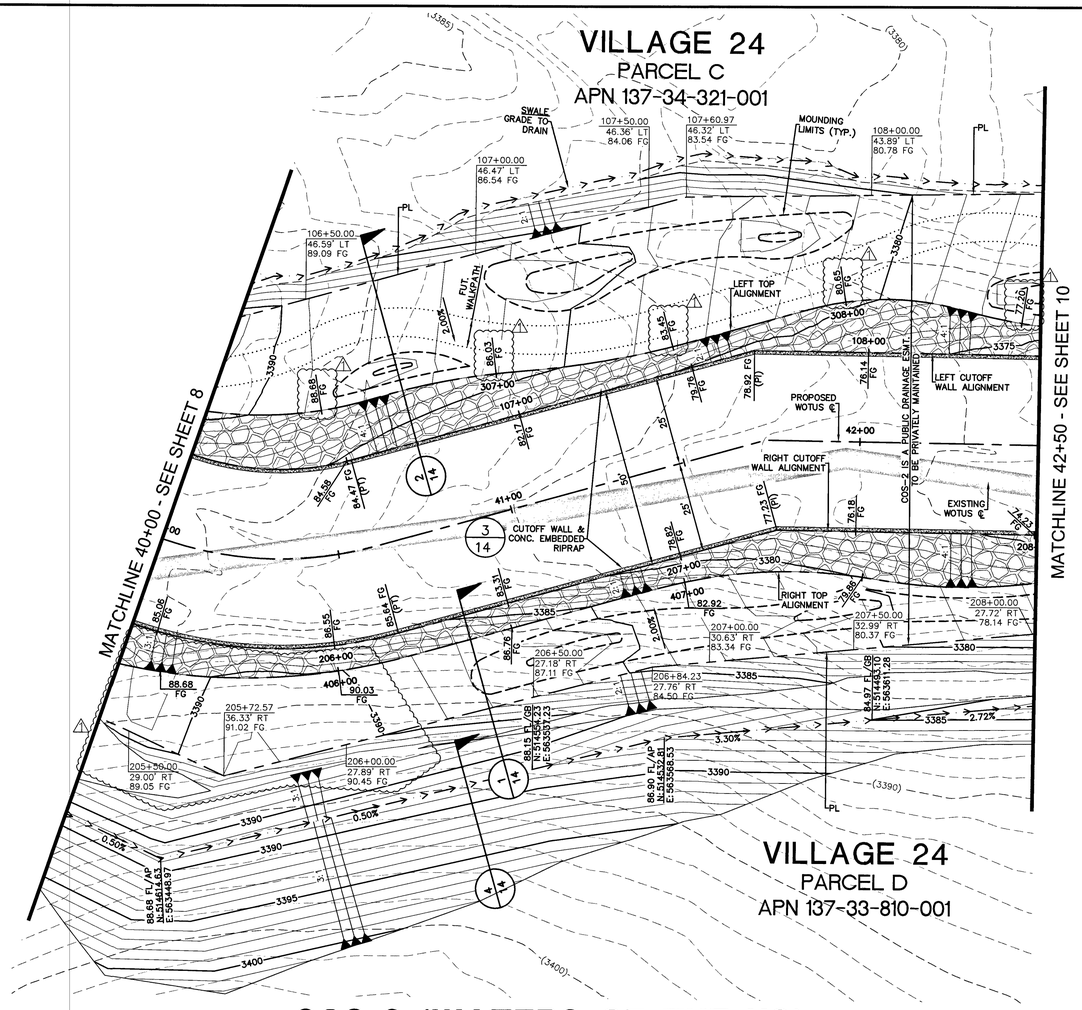
THE HOWARD HUGHES COMPANY, LLC

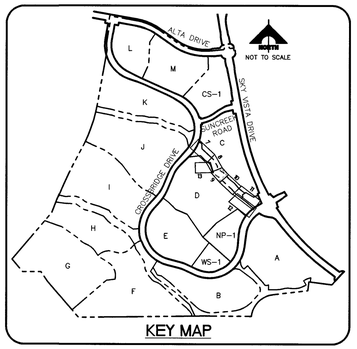
VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

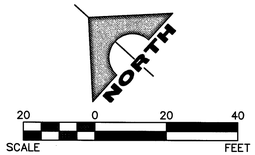
GRADING PLAN 2

DRAWING
8
8 OF 19 SHTS

H#68365

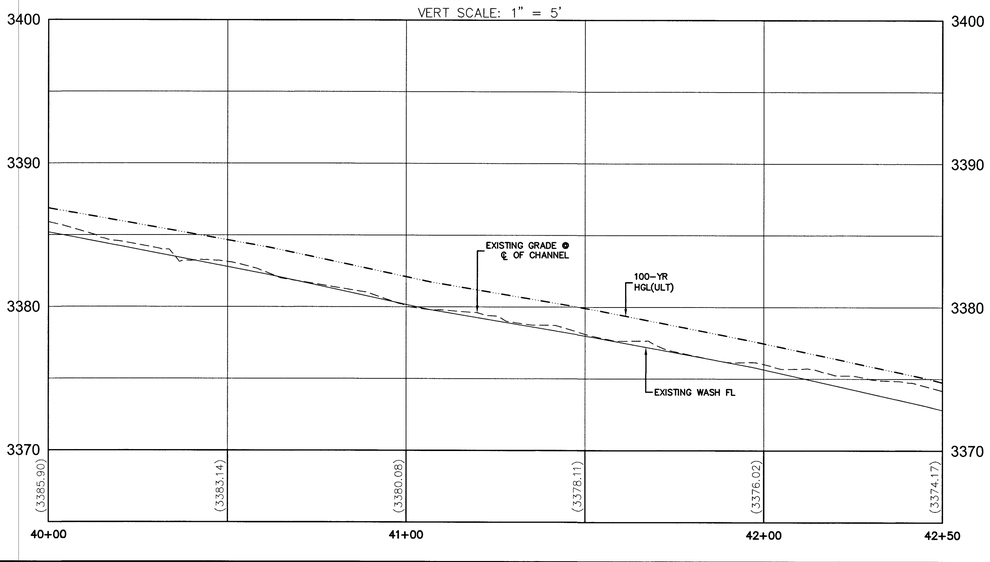






COS-2 (WATERS OF THE US)

HORIZ SCALE: 1" = 20'
VERT SCALE: 1" = 5'



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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

ENGINEER - STATE OF NEVADA
CHRISTOPHER J. MINSOL
Expires 6/30/2018
PROFESSIONAL ENGINEER
No. 15768
DATE: 7/7/17

REV	DATE	DESCRIPTION	DRAWN	DESIGN	DATE	AGEN. APP	DATE	GOV. APP	DATE
1	4/12/17	ADD PED. BRIDGE, ABUTMENT FOOTING, GRADING & STRUCTURAL SHEET, ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES, ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT, ADJUST MATCHING LINES AND ADD GRADING AROUND MAINTENANCE ROAD, ADJUST PARCEL C STORM DRAIN STUB.	JLJ	MDB					

PROJECT NO.
62024-232
DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:35:41

GCV
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

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Lupe Orozco

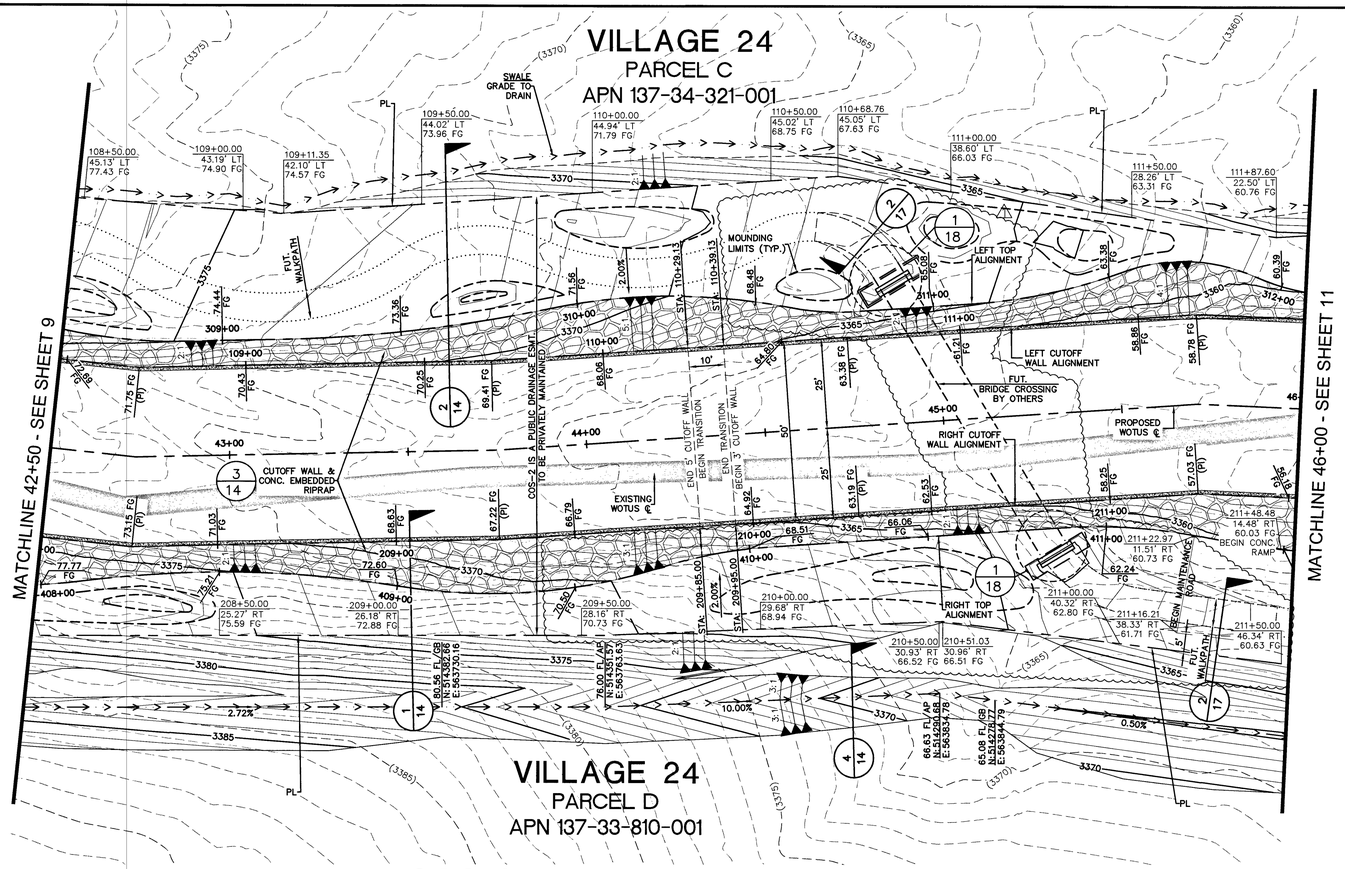
THE HOWARD HUGHES COMPANY, LLC

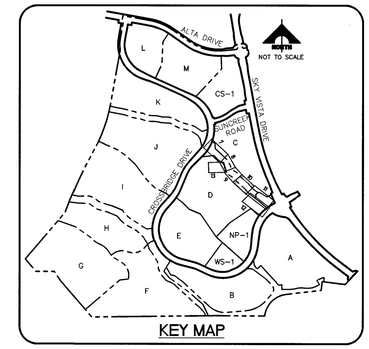
VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GRADING PLAN 3

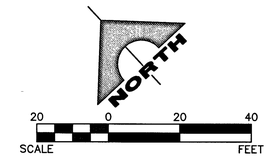
DRAWING
9
9 OF 19 SHTS

H#68365





KEY MAP



COS-2 (WATERS OF THE US)

HORIZ SCALE: 1" = 20'
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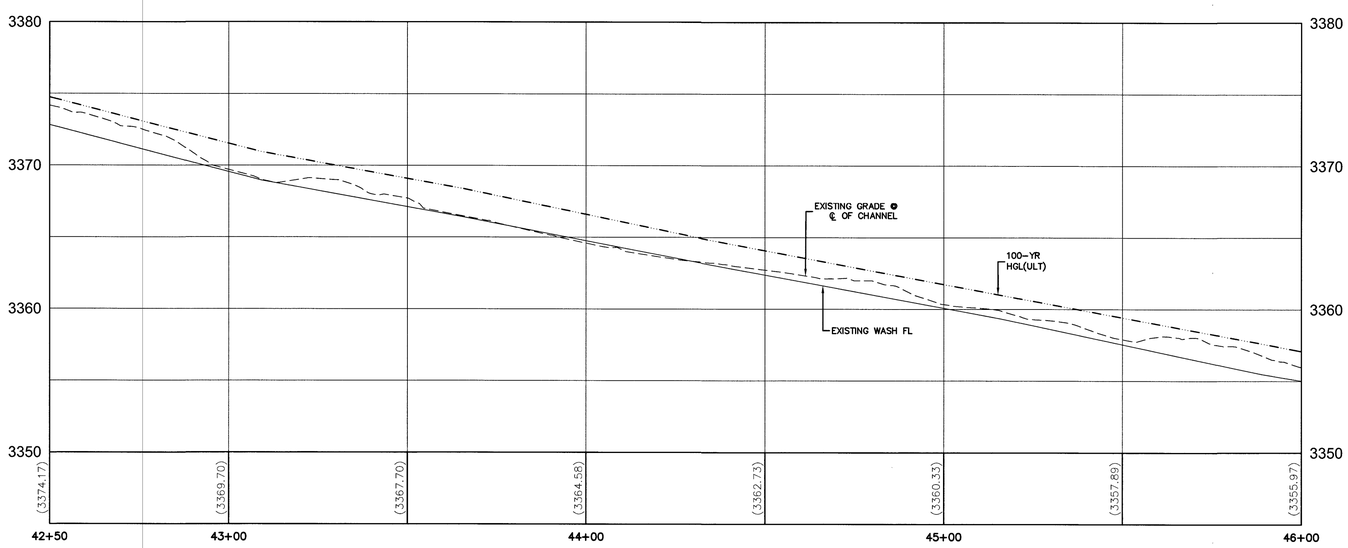

GRAVEL MAINTENANCE ROAD

2" CRUSHED ROCK/GRAVEL @ 95%

CONCRETE RAMP

6" THICK CONCRETE RAMP PER DETAIL 1 DRAWING 16.

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CLV #107Y6769

REV	DATE	DESCRIPTION	DRAWN	DATE	AGEN APP	DATE	GOV APP
1	4/12/17	ADD RED. BRIDGE ABUTMENT/FOOTING GRADING & STRUCTURAL SHEET. ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST WALL ALIGNMENTS AND GRADING AROUND MAINTENANCE ROAD. ADJUST PARCEL C.	JLJ				

STATE OF NEVADA PROFESSIONAL ENGINEER No. 15704 — TODD A. JOHNSON — 3/7/17

PROJECT NO. 62024-232
DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:36:08
DATE: 3/7/17

GCV
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
ENGINEERS \ SURVEYORS

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Lupe Osuna

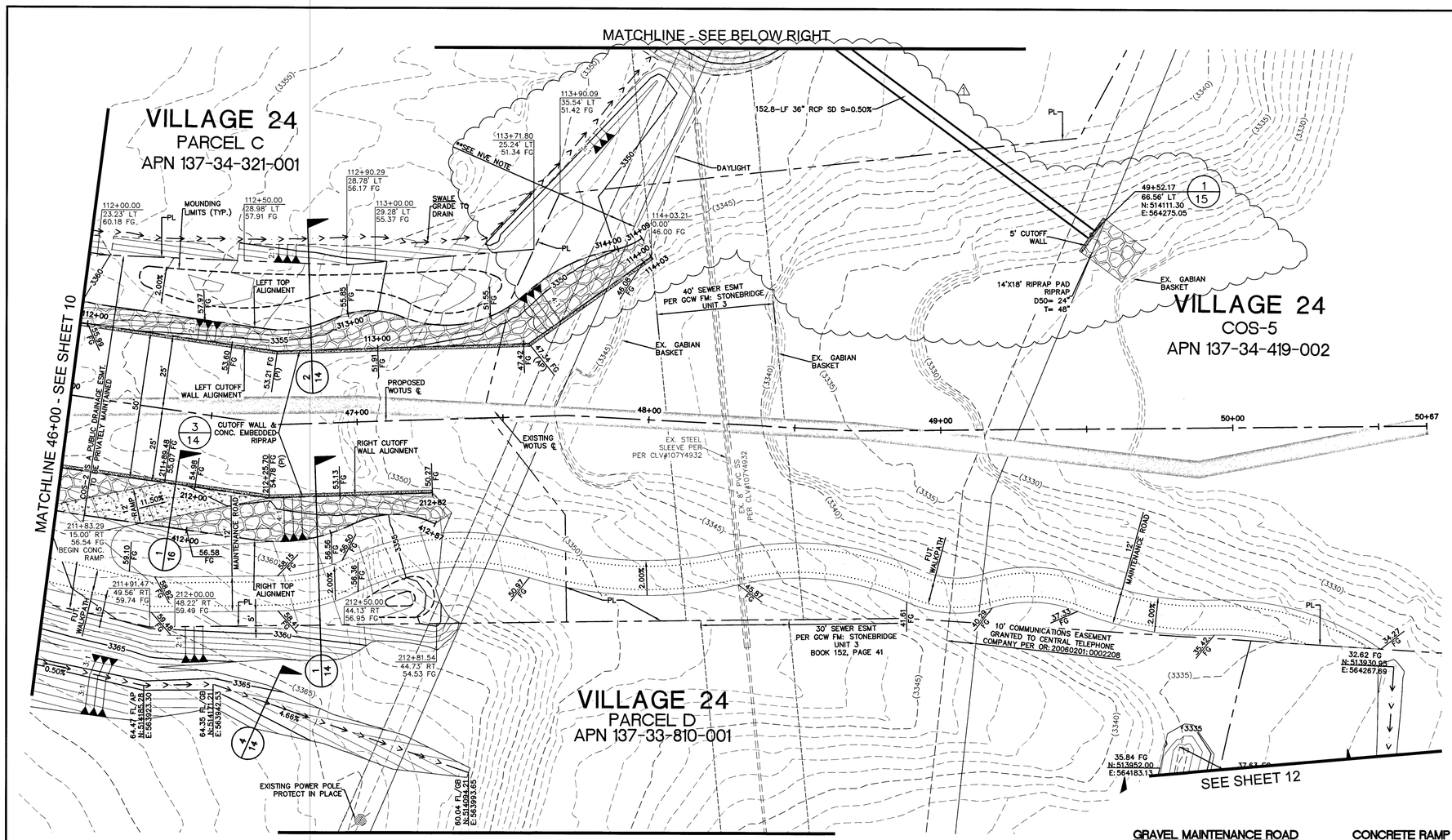
THE HOWARD HUGHES COMPANY, LLC

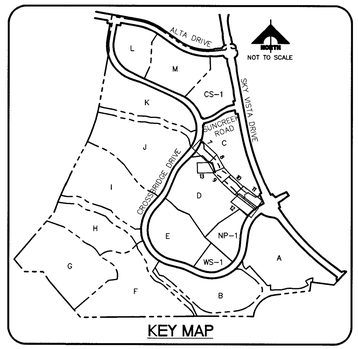
VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GRADING PLAN 4

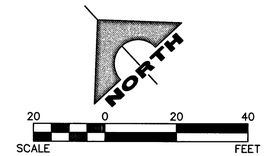
DRAWING
10
10 OF 19 SHTS

H#68365





KEY MAP



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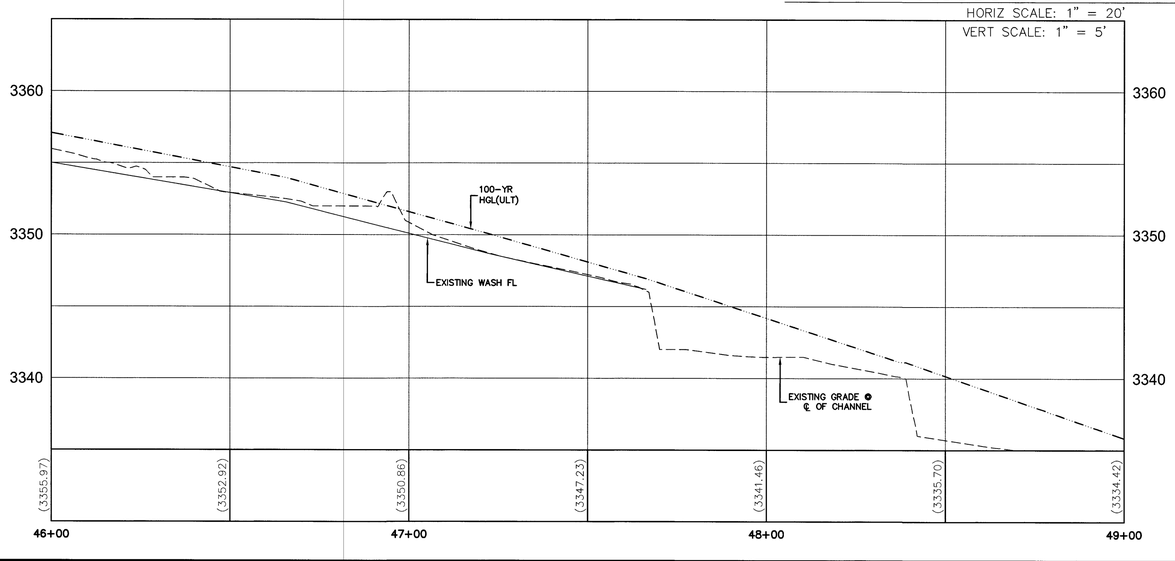

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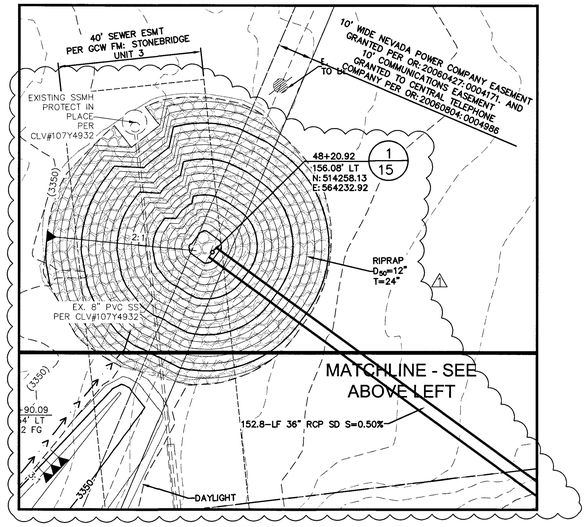
6" THICK CONCRETE RAMP PER DETAIL 1 DRAWING 16.



NVE NOTE:
10' WIDE NEVADA POWER COMPANY EASEMENT GRANTED PER OR: 20060427: 0004171. AND 10' COMMUNICATIONS EASEMENT GRANTED TO CENTRAL TELEPHONE COMPANY PER OR: 20060804: 0004986

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FOR GROUTED RIPRAP LARGE ROCK, SEE ADDITIONAL REQUIREMENTS TO SECTION 610 "SLOPE AND CHANNEL PROTECTION ADDITIONAL NOTES" PER DETAIL 3 SHEET 14.

COS WASH MAINTENANCE GENERAL NOTE:
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CCRFCD RAINFALL GAUGE 4329 IS LOCATED IN BROWNSTONE CANYON UPSTREAM OF VILLAGE 24.

CCRFCD RAINFALL GAUGE 4344 IS LOCATED IN THE RED ROCK DETENTION BASIN DOWNSTREAM OF VILLAGE 24.

NOTE
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BASIS OF BEARINGS
SOUTH 89°47'23" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN IN FILE 118, PAGE 100 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

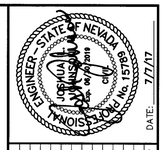
BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. D368	U.S.C. & G.S. DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD & WEST OF DETENTION BASIN.	3246.63 (FEET)	989.574 (METERS)

Call before you Dig
Avoid cutting underground utility lines. It's costly.
Call 811 or 1-800-227-2600
NV811 CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-6000

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769



REV	DATE	DESCRIPTION	DATE	JAEN. APP	DATE	GCW APP	DATE: 7/7/17
1	4/12/17	ADD PED. BRIDGE ABUTMENT/FOOTING, GRADING & STRUCTURAL SHEET, ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES, ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT, ADJUST MOUNDING LIMITS AND MOUNDING GRADING AROUND MAINTENANCE ROAD, ADJUST PARCEL C STORM DRAIN STUB.					

PROJECT NO.
62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:36:42

GCW
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com
ENGINEERS \ SURVEYORS

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_G0.dwg
Lupe Gracia

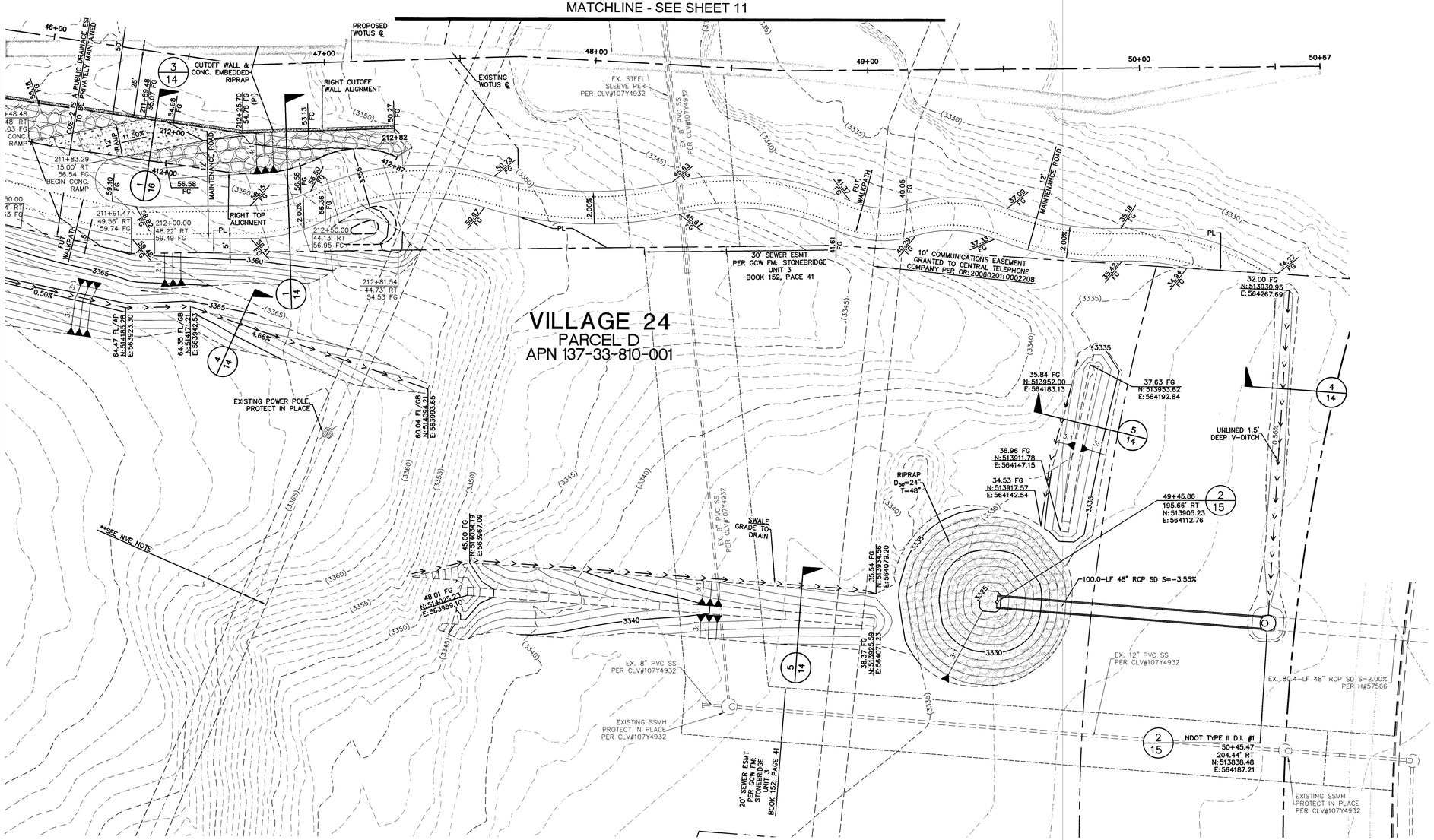
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GRADING PLAN 5

DRAWING
11
11 OF 19 SHTS

H#68365



COS-2 (WATERS OF THE US)

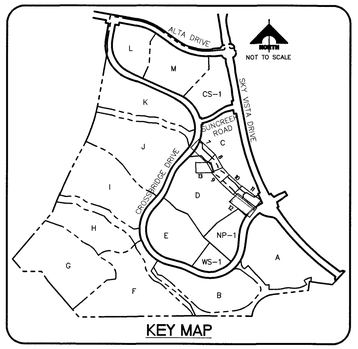
HORIZ SCALE: 1" = 20'

GRAVEL MAINTENANCE ROAD

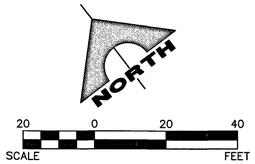
2" CRUSHED ROCK/GRAVEL @ 95%

CONCRETE RAMP

6" THICK CONCRETE RAMP PER DETAIL 1 DRAWING 16.



KEY MAP



NVE NOTE:
10' WIDE NEVADA POWER COMPANY EASEMENT GRANTED PER OR: 20060427: 0004171. AND 10' COMMUNICATIONS EASEMENT GRANTED TO CENTRAL TELEPHONE COMPANY PER OR: 20060804: 0004986

RIPRAP GENERAL NOTE:
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BENCHMARK

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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV # 107Y6769

REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA
No. 15704
KENNETH J. BURGESS
Expires 6/30/2017
DATE: 1/20/17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP

PROJECT NO. 62024-232
DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 01-20-17
PLOT TIME: 08:40:47

GCW
ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_GD.dwg
Matthew Burge

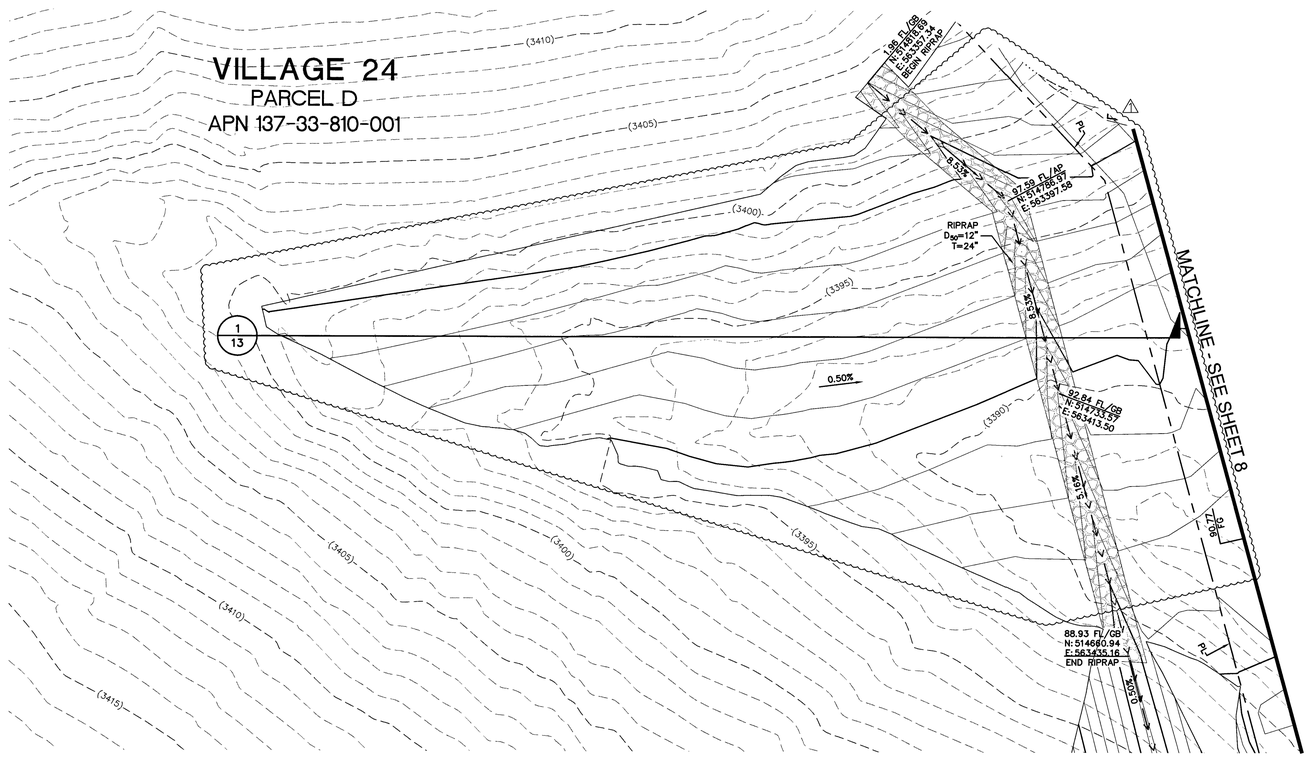
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GRADING PLAN 6

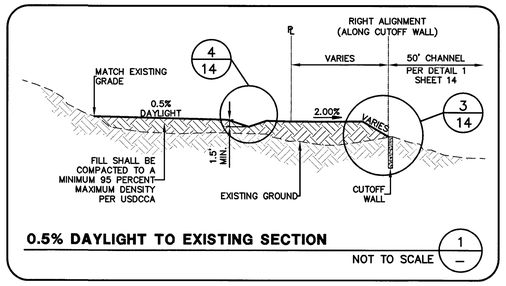
DRAWING
12
12 OF 16 SHTS

H#68365



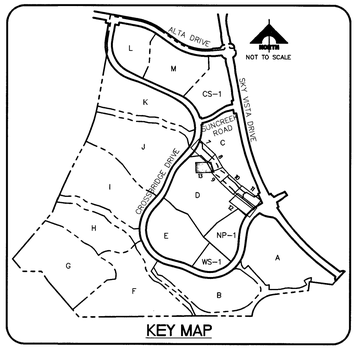
0.5% DAYLIGHT TO EXISTING GRADE

HORIZ SCALE: 1" = 20'

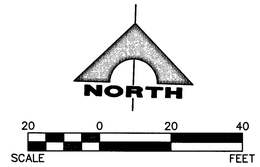


0.5% DAYLIGHT TO EXISTING SECTION (1/–)

NOT TO SCALE



KEY MAP



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FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

REV	DATE	DESCRIPTION	DRAWN	AGEN APP	DATE	GCW APP	DATE
1	4/12/17	ADD FFD, BRIDGE, ADJUSMENT/FOOTING, GRADING & SIDEWALK, ADJUST CUTOFF WALL, ADJUSTS & GRADING NEAR BRIDGE, FOUNDATION, STRUCTURES, ADJUST MAINTENANCE ACCESS, ROAD ALIGNMENT, ADJUST MOUNDING LIMITS AND MOUNDING GRADING, ADDING MAINTENANCE TRAIL, ADJUST PARCEL 2, STORM DRAIN, STUB.	DJH	SS			

PROJECT NO.
62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:37:19

GCW
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_G0.dwg
Lupe Gracia

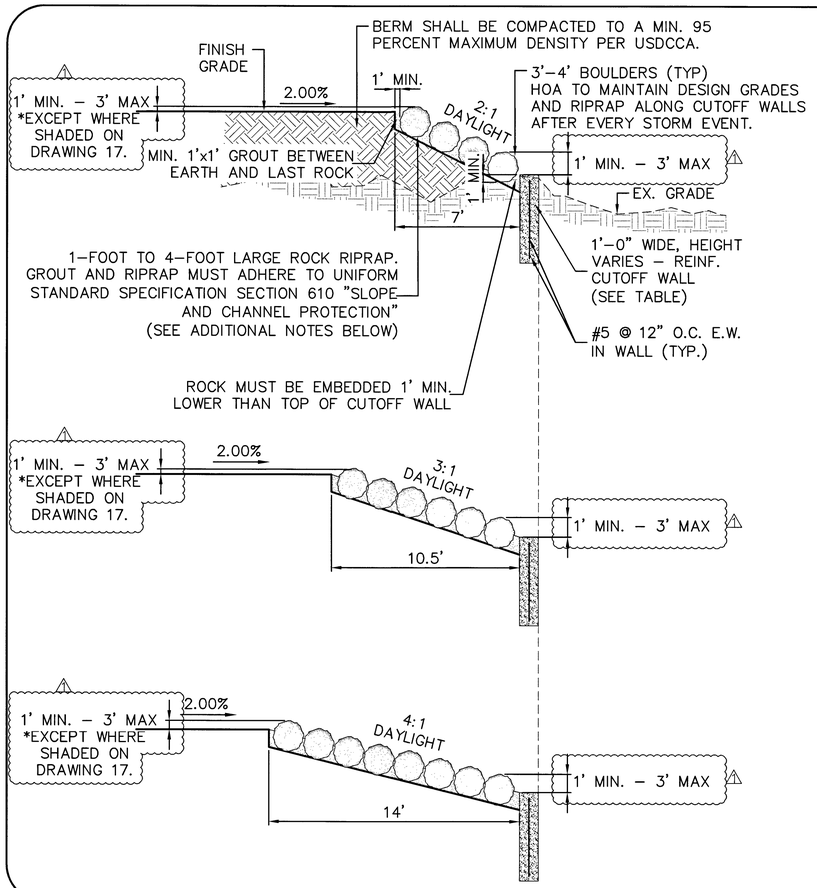
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

GRADING PLAN 7

DRAWING
13
13 OF 19 SHTS

H#68365



GROUTED RIPRAP LARGE ROCK (3 / –)

NOT TO SCALE

NOTES:

1. WASHES MUST BE INSPECTED AND MAINTAINED AFTER EACH STORM EVENT. IF THE CUT–OFF WALL IS EXPOSED, BACKFILL MUST BE PLACED TO THE TOP OF CUT–OFF WALL, BENCHED 1–FOOT HORIZONTALLY AND GRADED TO A 3:1 SLOPE.
2. CONTRACTOR SHALL USE PRIMARILY 3–FOOT AND 4–FOOT LARGE ROCK (BOULDER) RIPRAP FOR SLOPE PROTECTION, WITH 1–FOOT AND 2–FOOT ROCK USED TO FILL VOIDS BETWEEN THE 3–FOOT AND 4–FOOT BOULDERS.
3. ALL VOIDS SHALL BE FILLED WITH GROUT TO A MINIMUM DEPTH OF HALF THE DEPTH OF THE ROCK/BOULDER.
4. BOTTOM ROW OF ROCK/BOULDER ADJACENT TO THE CUT–OFF WALL MUST BE EMBEDDED 1–FOOT BELOW THE TOP OF THE CUT–OFF WALL.
5. EXCLUDING THE BOTTOM ROW OF ROCK/BOULDER, THE BOTTOM OF ALL 3–FOOT AND 4–FOOT ROCK/BOULDER MUST BE A MINIMUM OF 1–FOOT BELOW THE TOP OF THE LOWER ROCK, AND 1–FOOT AND 2–FOOT ROCK MUST BE A MINIMUM OF 6" BELOW THE TOP OF THE LOWER ROCK.

SECTION 610
SLOPE AND CHANNEL PROTECTION ADDITIONAL NOTES

610.02.04 STONES FOR RIPRAP

A. STONES USED FOR RIPRAP SHALL BE HARD, DURABLE, ANGULAR IN SHAPE, RESISTANT TO WEATHERING AND EROSION, AND FREE FROM SPOILS, CRACKS, AND ORGANIC MATTER.

ADD 4 AND 5 TO THIS SUBSECTION:

4. THE SPECIFIC GRAVITY OF THE CONCRETE EMBEDDED RIPRAP SHALL NOT BE LESS THAN 2.45.
5. THE NOMINAL STONE SIZE FOR THE GROUTED RIPRAP LARGE ROCK SHALL BE 3–FOOT TO 4–FOOT, WITH 1–FOOT TO 2–FOOT FILLER ROCK.

C. CONTROL OF GRADATION WILL BE BY VISUAL INSPECTION.

REVISE SUBSECTION AS FOLLOWS:

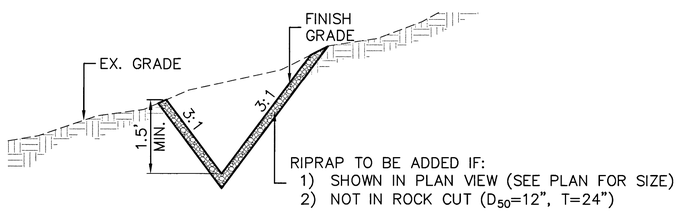
1. THE CONTRACTOR SHALL PROVIDE A SAMPLE OF STONE OF AT LEAST 5 TONS MEETING THE GRADATION FOR GROUTED RIPRAP LARGE ROCK.

REVISE SUBSECTION D. AS FOLLOWS:

D. CALICHE STONE OR CEMENTITIOUS MATERIALS MEETING THE REQUIREMENTS OF THIS SECTION MAY BE USED AS RIPRAP WITH PRIOR APPROVAL OF THE ENGINEER. CALICHE STONE OR CEMENTITIOUS MATERIAL MAY NOT BE USED FOR GROUTED RIPRAP LARGE ROCK.

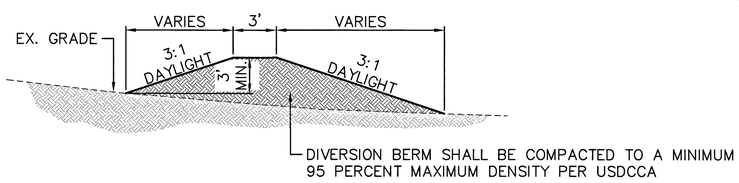
APPROXIMATE STATIONING OF CUTOFF WALLS FOR COS–2

HEIGHT	STATION	COMMENTS
7'	100+00.00 & 200+00.00	BEGIN
TRANS	105+45.02 & 204+69.11	10' TRANSITION
5'	105+55.02 & 204+79.11	–
TRANS	110+29.13 & 209+85.00	10' TRANSITION
3'	110+39.13 & 209+95.00	–
	114+03.21 & 212+82.00	END



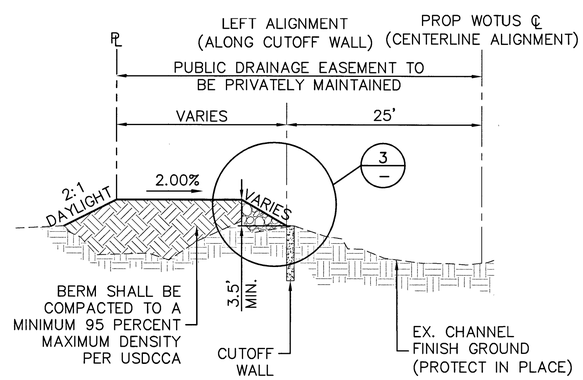
TYPICAL V-DITCH SECTION (4 / –)

NOT TO SCALE



TYPICAL UNLINED BERM SECTION (5 / –)

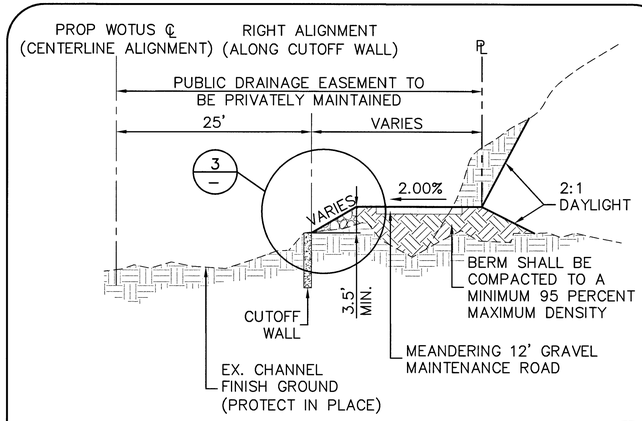
NOT TO SCALE



TYPICAL COS-2 LEFT ALIGNMENT BERM (2 / –)

STATION 100+00.00 TO 114+09.00

NOT TO SCALE



TYPICAL COS-2 RIGHT ALIGNMENT BERM (1 / –)

STATION 200+00.00 TO 212+82.00

NOT TO SCALE

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CLV #107Y6769

REV	DATE	DESCRIPTION	DATE	AGEN. APP	DATE	GCW APP
1	4/12/17	ADD FED. BRIDGE ABUTMENT FOOTING GRADING & ASSOCIATED SLOPE. ADJUST DRAINAGE & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST MOUNDING LIMITS AND MOUNDING GRADING. ADJUST MAINTENANCE ROAD. ADJUST PARCEL 2 STORM DRAIN STUB.	JLJ	SB		

DATE: 7/7/17

PROJECT NO. 62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:39:46

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
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Lupe Gracia

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

DETAIL SHEET 1

DRAWING 14
14 OF 19 SHTS

H#68365

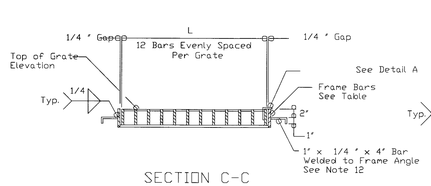
BILL OF MATERIALS (RCP HDPE CMP)

PIPE SIZE (INCH)	SINGLE (ONE GRATE)					DOUBLE (TWO GRATES)					TRIPLE (THREE GRATES)				
	* CONCRETE (CY)		* REINF. (LB.)			* CONCRETE (CY)		* REINF. (LB.)			* CONCRETE (CY)		* REINF. (LB.)		
	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	STR STEEL (LB)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	STR STEEL (LB)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	BASE QUAN. (H MIN.)	ADD RATE (CY/FT)	STR STEEL (LB)
≤15	0.71	0.19	36	10	211	1.06	0.26	50	13	397	1.41	0.33	70	17	583
18	0.89	0.20	40	10	306	1.31	0.28	56	13	574	1.72	0.35	77	18	842
24	1.08	0.22	58	12	349	1.56	0.30	80	15	652	2.04	0.37	105	20	956
30	1.28	0.24	63	12	390	1.83	0.31	86	16	729	2.38	0.39	113	20	1068
36	1.50	0.26	67	13	524	2.11	0.33	92	16	980	2.72	0.41	120	21	1435
42	1.71	0.28	90	15	575	2.39	0.35	120	18	1073	3.07	0.43	154	22	1571
48	1.94	0.30	95	15	707	2.68	0.37	127	18	1329	3.42	0.44	163	23	1951

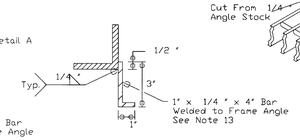
*The Concrete And Reinforcing Quantities Are Based On The H Min. Shown. Increase The Concrete And Reinforcing Base Quantity By The Corresponding Add Rate (Per Foot Of Increased H) If The H Specified Is Larger Than H Min.

TABLE OF DIMENSIONS (RCP HDPE CMP)

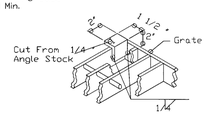
PIPE SIZE (INCH)	A	H Min. (FT)	MAIN BARS (INCH)	FRAME ANGLES (INCH)	FRAME BARS (INCH)	L (FT)		
						SINGLE GRATE	DOUBLE GRATE	TRIPLE GRATE
≤15	2'	2.50	3 1/2X 3/8	4 X 3 X 3/8	4 X 3/8	2	4	6
18	2' 6	3.00	4 1/2X 3/8	5 X 3 X 3/8	5 X 3/8	2	4	6
24	3'	3.50	4 1/2X 3/8	5 X 3 X 3/8	5 X 3/8	2	4	6
30	4'	4.00	4 1/2X 3/8	5 X 3 X 3/8	5 X 3/8	2	4	6
36	4'	4.50	5 1/2X 3/8	6X 3 1/2X 3/8	6 X 3/8	2	4	6
42	5'	5.00	5 1/2X 3/8	6X 3 1/2X 3/8	6 X 3/8	2	4	6
48	5'	5.50	5 1/2X 7/16	6X 3 1/2X 3/8	6 X 3/8	2	4	6



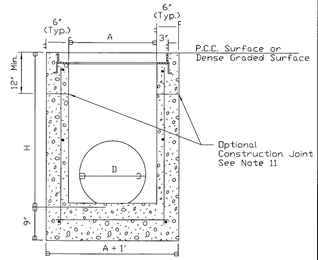
SECTION C-C



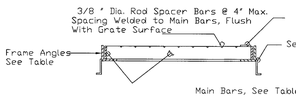
TAB DETAIL



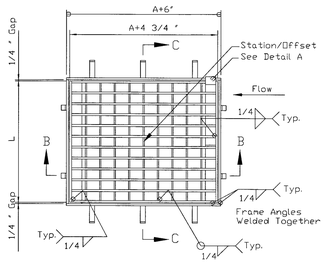
DETAIL A



SECTION A-A



SECTION B-B



GRATE AND FRAME

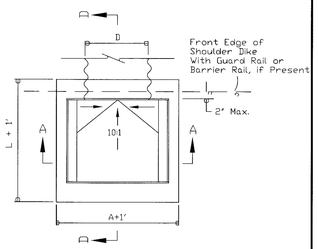
NOTES:

See Detail A. ALL CONCRETE SHALL BE CLASS A OR AA.

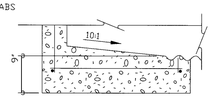
2. REINFORCING STEEL SHALL BE NO.4 BARS WITH MAXIMUM SPACING AT 18" CENTERS, WIRED TIGHTLY AT ALL INTERSECTIONS AND EMBEDDED 2" CLEAR OF ALL CONCRETE SURFACES.
3. EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1".
4. DIMENSIONS MAY BE VARIED TO FIT LOCAL CONDITIONS IF ORDERED BY THE ENGINEER.
5. COMMERCIAL PREFABRICATED GRATINGS APPROVED BY THE BRIDGE DIVISION MAY BE USED IN LIEU OF THE FIELD-WELDED GRATING SHOWN ABOVE.
6. EXTREME LOW COVER SITUATIONS TO BE REVIEWED BY HYDRAULICS ENGINEER.
7. SLOPE CATCH BASIN FLOORS 10:1 FROM ALL DIRECTIONS TOWARD OUTLET PIPE. IF BASIN IS USED AS A JUNCTION, SHAPE FLOW LINE(S) TO OUTLET PIPE AND PROVIDE A 10:1 SLOPE TO FLOW LINE(S).
8. SEE SHEET R-2.9.1 FOR DETAILS IF CONNECTING HDPE PIPE.
9. A SINGLE TYPE 2 DROP INLET SHALL BE CONSTRUCTED UNLESS A DOUBLE OR TRIPLE IS SPECIFIED.
10. SINGLE GRATE CONFIGURATION SHOWN FOR CLARITY. OUTSIDE DIMENSIONS OF EACH GRATE SHALL MEASURE 2' BY A+4 3/4 ".
11. RUN REBAR CONTINUOUS THRU CONSTRUCTION JOINT. JOINT MUST BE A MINIMUM OF 3' FROM HORIZONTAL BARS.
12. WELD ONE TAB ONLY OF GRATE AND REMAINING TWO TABS 6" FROM EDGE OF FRAME. SIX TABS PER INLET, THREE TABS ON EACH SIDE
13. WELD TABS 6" FROM EDGE OF FRAME. FOUR TABS PER GRATE, TWO ON EACH SIDE.

DESIGN NOTES:

D1. ADDITIONAL PIPE PENETRATIONS MAY BE PLACED IN ANY WALL.



PLAN

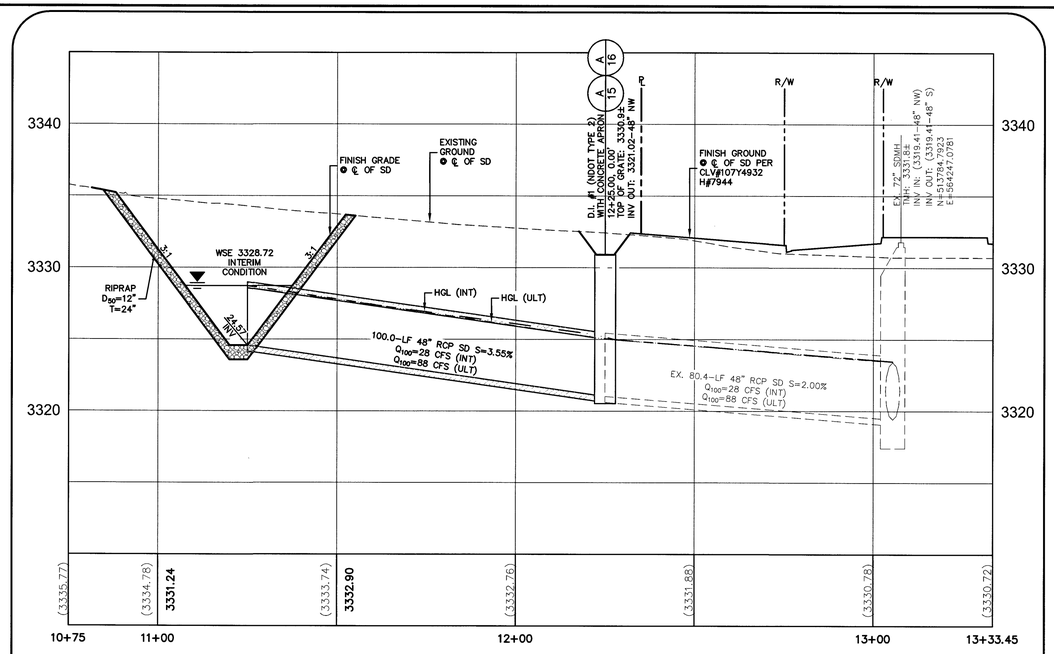


SECTION D-D

NEVADA DEPARTMENT OF TRANSPORTATION	
TYPE 2 DROP INLET	
Signed Original On File	R-4.8.1 (609)
CHIEF HYDRAULICS ENGINEER	ACCEPTED 11/76 REVISION 5/09

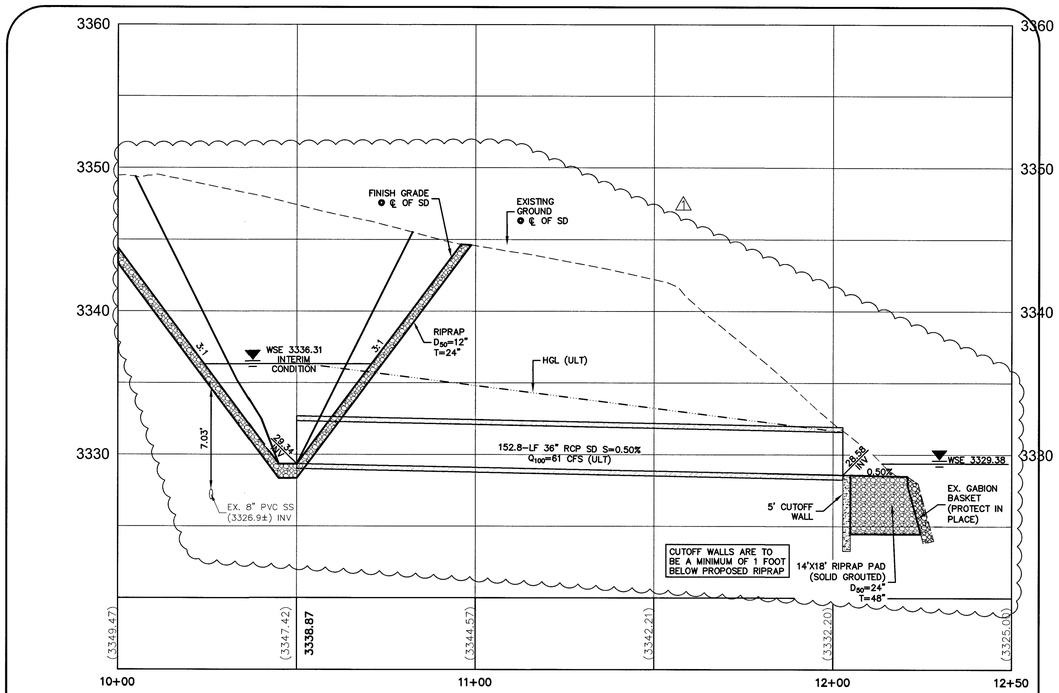
NDOT TYPE 2 DROP INLET

NOT TO SCALE — A



48" RCP AND SUMP PROFILE

HORIZ. SCALE: 1"= 20' VERT. SCALE: 1"= 5' — 2



36" RCP AND SUMP PROFILE

HORIZ. SCALE: 1"= 20' VERT. SCALE: 1"= 5' — 1

CLV #107Y6769

Call before you Dig. Avoid cutting underground utility lines. It's costly. Call 811 or 1-800-227-2600 AND CLARK COUNTY TRAFFIC OPERATIONS 1-702-455-6000

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY. CALL BEFORE YOU DO OVERHEAD 1-702-227-2929

FAST Call before you UnderGround 1-702-432-5300 FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

STATE OF NEVADA PROFESSIONAL ENGINEER — JASON M. JOHNSON — No. 15768 — Exp. 06/30/2018

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOV APP	DATE
1	4/12/17	ADD PED. BRIDGE ABUTMENT/FOOTING GRADING & STRUCTURAL SHEET. ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT AND GRADING. ADJUST MAINTENANCE ROAD AND GRADING AROUND STORM DRAIN STUB. ADJUST PARCEL C.	7/14/17	JS			7/7/17

PROJECT NO. 62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JJJ
PLOT DATE: 07-07-17
PLOT TIME: 10:40:02

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\500\62024-226-2\DWG\Production\V24-226-2_D1.dwg
Lupe Garcia

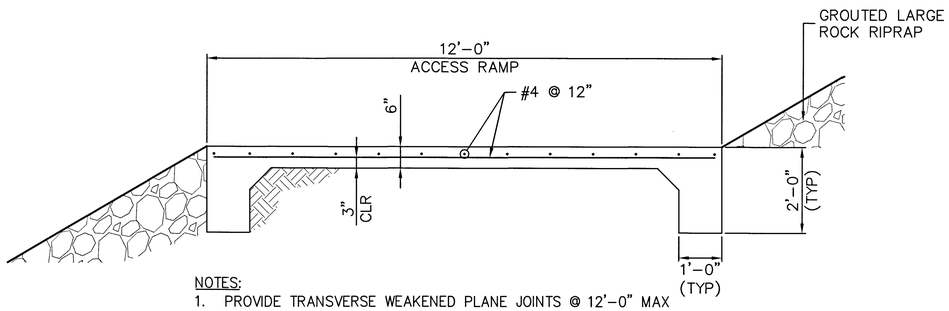
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

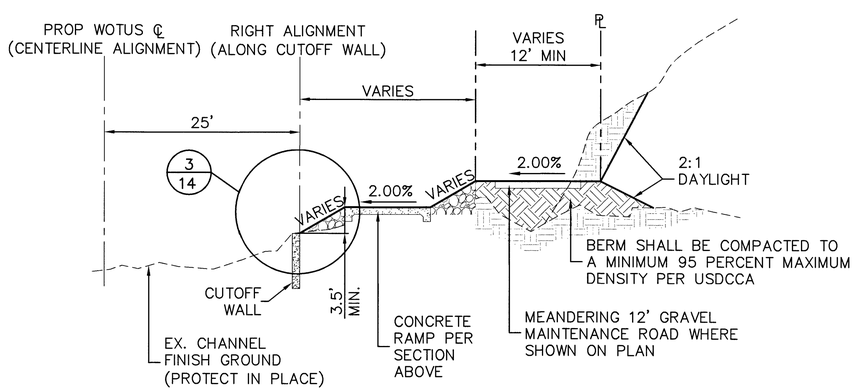
DETAIL SHEET 2

DRAWING 15
15 OF 19 SHTS

H#68365

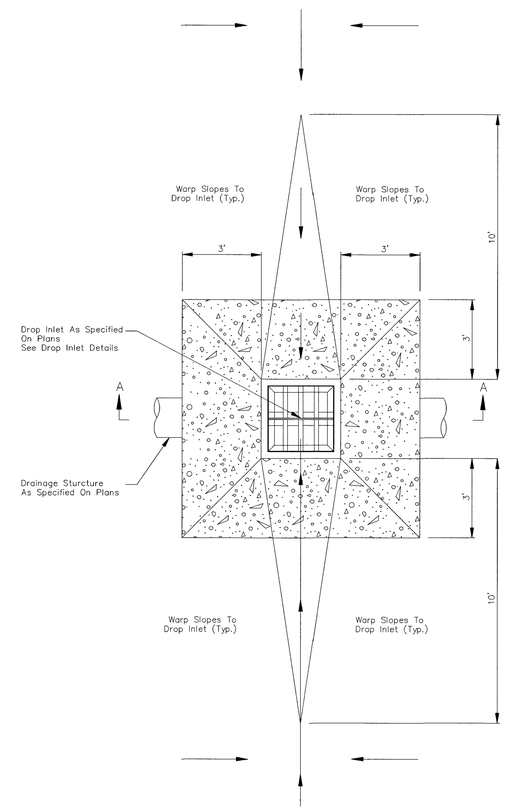


NOTES:
1. PROVIDE TRANSVERSE WEAKENED PLANE JOINTS @ 12'-0" MAX
2. CONCRETE: f'c=4,500 psi @ 28 DAYS
3. REINFORCING STEEL: ASTM A615



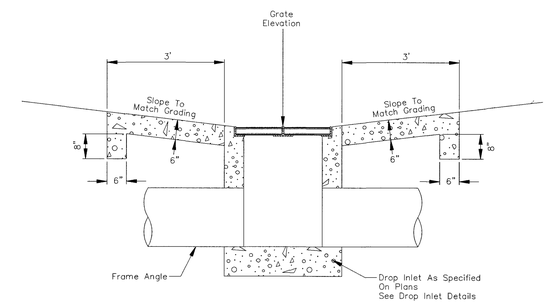
TYPICAL 12' CONCRETE RAMP SECTION (1)

NOT TO SCALE



DROP INLET CONCRETE APRON

GENERAL NOTES:
1. CONCRETE SHALL BE CLASS A OR AA.



SECTION A–A

NEVADA DEPARTMENT OF TRANSPORTATION		
DROP INLET CONCRETE APRON		
Signed Original On File	R-4.2.7	(609)
CHIEF HYDRAULICS ENGINEER	ADOPTED 1/09	REVISION

NDOT DROP INLET CONCRETE APRON (A)

NOT TO SCALE

Call before you Dig
Avoid cutting underground utility lines, it's costly.
Call
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OR
AND
CLARK COUNTY TRAFFIC OPERATIONS
1-702-455-6000

AVOID HITTING OVERHEAD POWER LINES. IT'S COSTLY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV # 10746769

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GCW APP	DATE

DATE: 1/29/17

PROJECT NO. 62024-232
DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 01-20-17
PLOT TIME: 08:39:58

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_DT.dwg
Matthew Burge

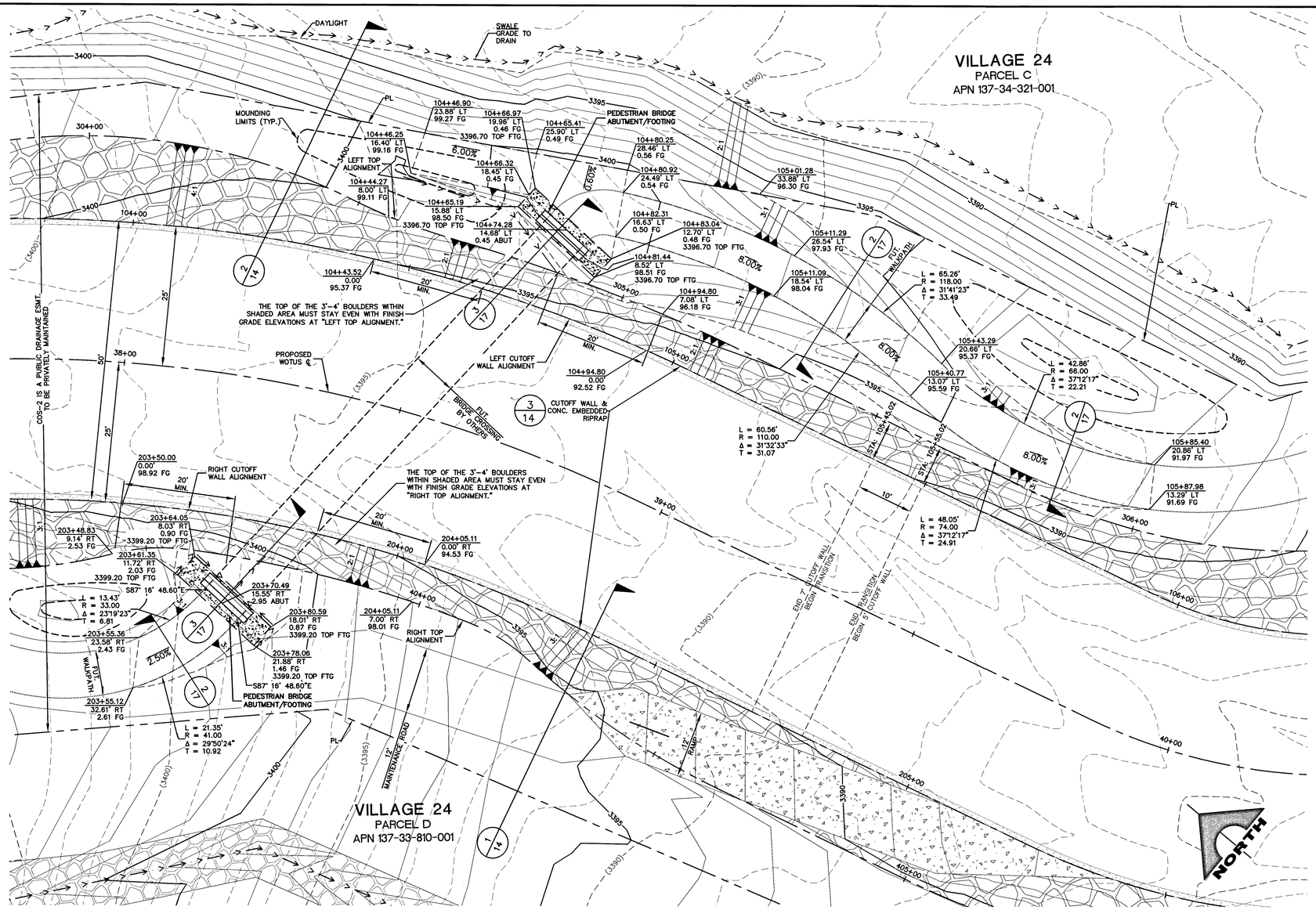
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

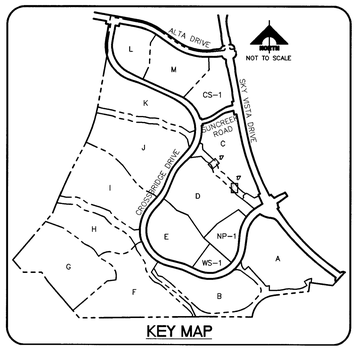
DETAIL SHEET 3

DRAWING 16
16 OF 16 SHTS

H#68365



NORTH PEDESTRIAN BRIDGE ABUTMENTS/FOOTINGS (1)
SCALE: 1" = 10'



KEY MAP

10 0 10 20
SCALE FEET

HATCH KEY

PEDESTRIAN BRIDGE ABUTMENT/FOOTING
PEDESTRIAN BRIDGE ABUTMENTS/FOOTINGS PER STRUCTURAL DETAILS ON DRAWING 19

CONCRETE RAMP
6" THICK CONCRETE RAMP PER DETAIL 1 DRAWING 16.

GRAVEL MAINTENANCE ROAD
2" CRUSHED ROCK/GRAVEL @ 95%

NOTE

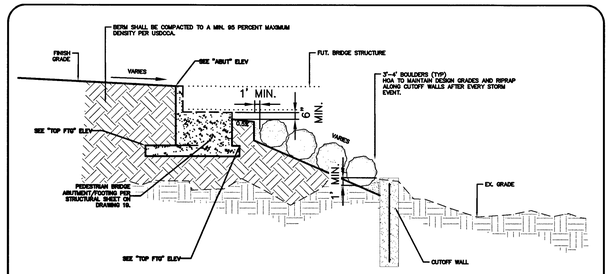
THIS SET OF DRAWINGS IS BASED UPON NAVD 88 DATUM. PREVIOUS DRAWINGS MAY BE BASED ON OTHER DATUM. CARE SHOULD BE OBSERVED WHEN UTILIZING THIS SET OF DRAWINGS

BASIS OF BEARINGS

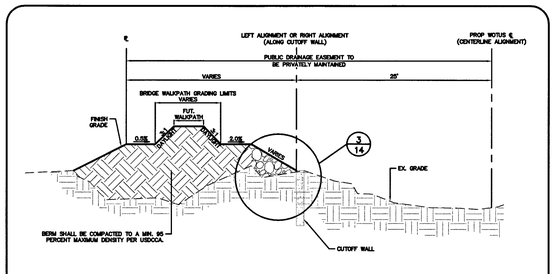
SOUTH 89°47'23" EAST, BEING THE BEARING OF THE NORTH LINE OF SECTION 33, TOWNSHIP 20 SOUTH, RANGE 59 EAST, M.D.M., CITY OF LAS VEGAS, CLARK COUNTY, NEVADA AS SHOWN IN FILE 118, PAGE 100 OF PARCEL MAPS ON FILE AT THE CLARK COUNTY, NEVADA RECORDER'S OFFICE.

BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
CLV BM No. D368	U.S.C. & G.S. DISC SET IN ROCK RIDGE 150' SOUTH OF CHARLESTON BLVD & WEST OF DETENTION BASIN.	3246.63 (FEET)	989.574 (METERS)



TYPICAL PED. BRIDGE ABUTMENT/FOOTING SECTION (3)
NOT TO SCALE



TYPICAL BRIDGE WALKPATH GRADING SECTION (2)
NOT TO SCALE

Call before you Dig
Avoid cutting underground utility lines, it's easy.
Call
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OR
CLARK COUNTY TRAFFIC OPERATIONS AND
1-702-455-6000

AVOID HITTING OVERHEAD POWER LINES. IT'S EASY.
CALL BEFORE YOU DO OVERHEAD
1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

ENGINEER - STATE OF NEVADA
GARY C. WILKINSON
No. 15786
PROFESSIONAL ENGINEER
DATE: 7/7/17

REV	DATE	DESCRIPTION	DRAWN	DATE	AGEN APP	DATE	GCW APP
1	4/12/17	ADD PED. BRIDGE ABUTMENT/FOOTING GRADING & STRUCTURAL SHEET. ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST MOUNDING LIMITS AND ADD GRADING AROUND MAINTENANCE ROAD. ADJUST PARCEL C. STORM DRAIN STUB.	LJB/LC	5/8			

PROJECT NO.
62024-232
DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:41:41

GCW ENGINEERS\SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

F:\Projects\5600\62024-226-2\DWG\Production\V24-226-2_BRDG_FND-GRD.dwg
Lupe Osuna

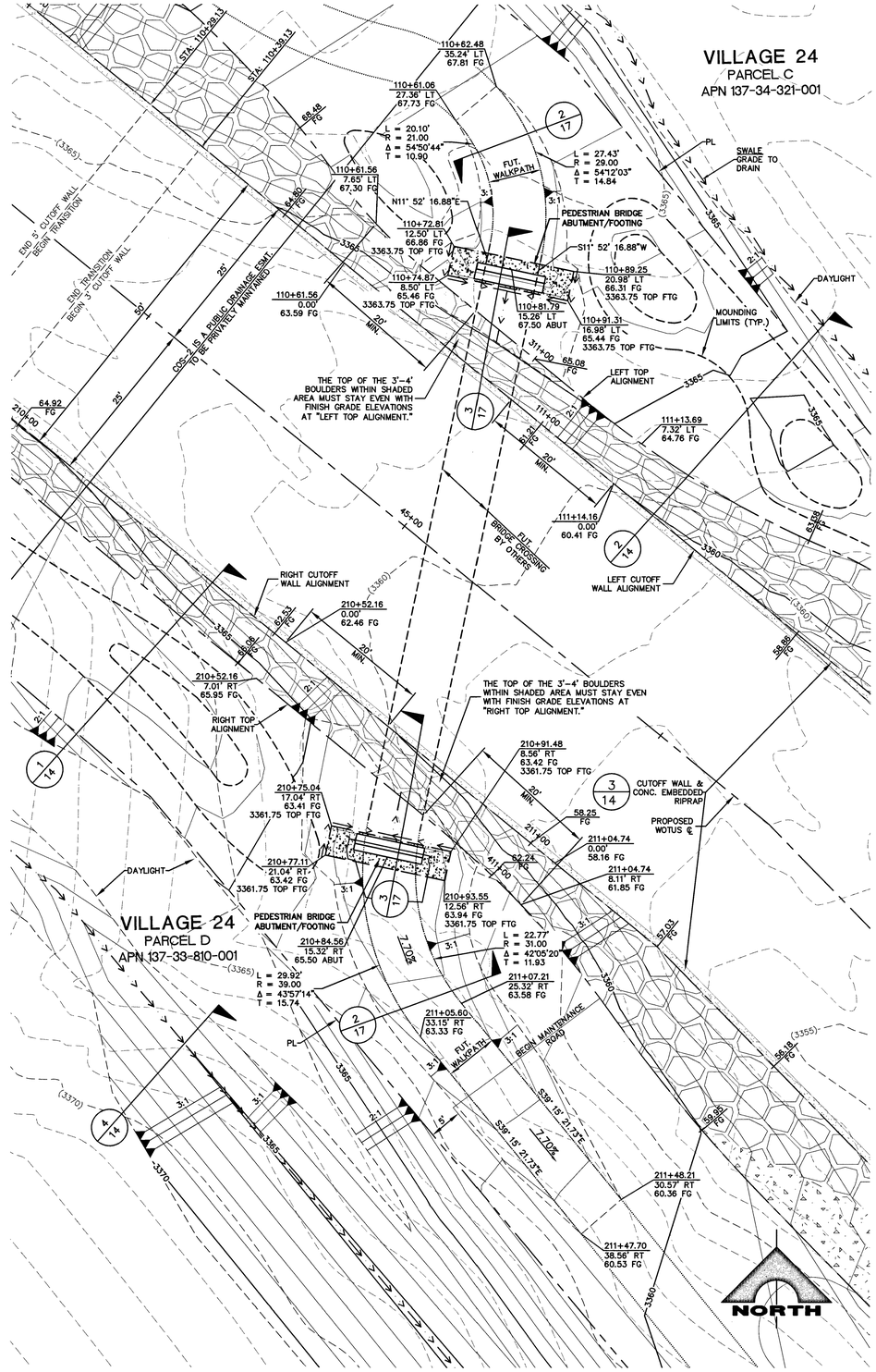
THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

PED. BRIDGE ABUTMENT/FOOTING DETAILS 1

DRAWING
17
17 OF 19 SHTS

H#68365



SOUTH PEDESTRIAN BRIDGE ABUTMENTS/FOOTINGS (1)
SCALE: 1" = 10'

KEY MAP

10 0 10 20
SCALE FEET

HATCH KEY

PEDESTRIAN BRIDGE ABUTMENT/FOOTING
PEDESTRIAN BRIDGE ABUTMENTS/FOOTINGS PER STRUCTURAL DETAILS ON DRAWING 19

CONCRETE RAMP
6" THICK CONCRETE RAMP PER DETAIL 1 DRAWING 16.

GRAVEL MAINTENANCE ROAD
2" CRUSHED ROCK/GRAVEL @ 95%

NOTE

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BENCHMARK

BM #	DESCRIPTION	NAVD 88 DATUM	NAVD 88 DATUM
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811
OR
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1-702-227-2929

FAST
Call before you UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL SYSTEM OF TRANSPORTATION

CLV #107Y6769

STATE OF NEVADA
ENGINEER
No. 15768
DATE: 7/7/17

REV	DATE	DESCRIPTION	DATE	AGEN. APP	DATE	GOV. APP	DATE
1	4/12/17	ADD PED. BRIDGE ABUTMENT/FOOTING, GRADING & STRUCTURAL SHEET. ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST MOUNDING LIMITS AND ADD MOUNDING AROUND MAINTENANCE ROAD. ADJUST PARCEL C STORM DRAIN STUB.	7/13/17	SB			

PROJECT NO.
62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:42:17

GCW
ENGINEERS \ SURVEYORS
1555 S. RAINBOW BLVD.
LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcwengineering.com

THE HOWARD HUGHES COMPANY, LLC

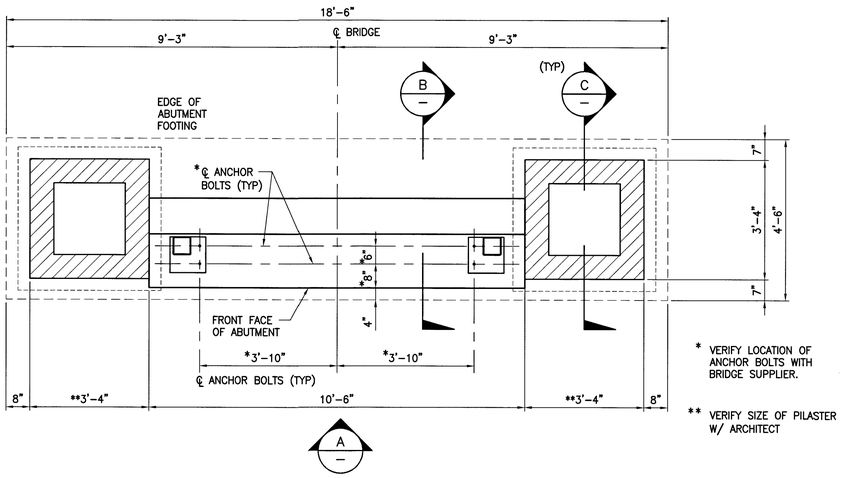
VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

PED. BRIDGE ABUTMENT/FOOTING DETAILS 2

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_BRDG_FND-GRD.dwg
Lupe Ocaña

DRAWING
18
18 OF 19 SHTS

H#68365

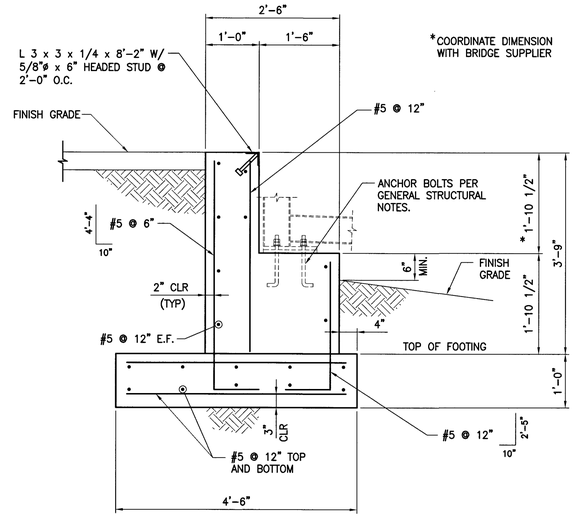


* VERIFY LOCATION OF ANCHOR BOLTS WITH BRIDGE SUPPLIER.

** VERIFY SIZE OF PILASTER W/ ARCHITECT

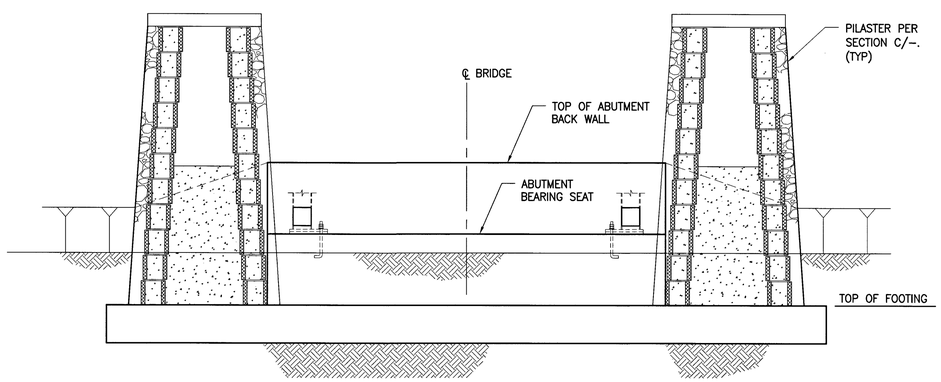
1 PLAN - PEDESTRIAN BRIDGE ABUTMENT

SCALE: 1/2" = 1'-0"



B SECTION

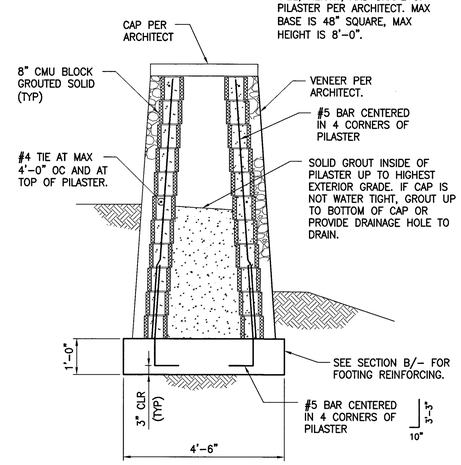
SCALE: 3/4" = 1'-0"



A ELEVATION - PEDESTRIAN BRIDGE ABUTMENT

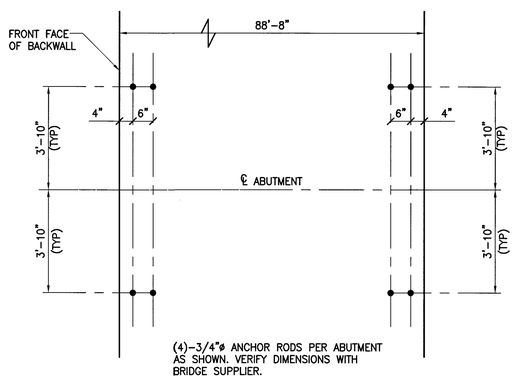
SCALE: 1/2" = 1'-0"

NOTES:
SIZE, HEIGHT, AND SHAPE OF PILASTER PER ARCHITECT. MAX BASE IS 48" SQUARE, MAX HEIGHT IS 8'-0".



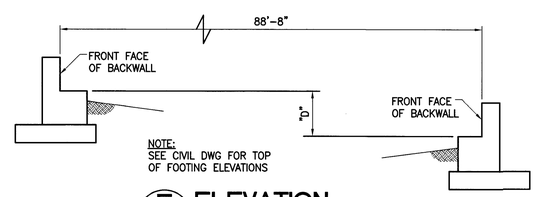
C SECTION

SCALE: 1/2" = 1'-0"



D ANCHOR BOLT LAYOUT

SCALE: NTS



NOTE:
SEE CIVIL DWG FOR TOP OF FOOTING ELEVATIONS

SLOPE	
BRIDGE	"D"
SOUTH	2'-0"
NORTH	2'-6"

E ELEVATION

SCALE: NTS

GENERAL STRUCTURAL NOTES:

DESIGN SPECIFICATIONS: AASHTO LRFD GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES, 2009

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 7TH EDITION, 2014.

ABUTMENT DESIGN LOADS:

THE FOLLOWING BRIDGE SUPERSTRUCTURE LOADS CAME FROM THE BRIDGE DESIGN ENGINEER.

LIVE LOAD:
VEHICLE = AASHTO H5
PEDESTRIAN LOAD = 90 PSF (NON-REDUCIBLE)

UNIFORM LIVE LOAD = 16,260 LBS PER BASE PLATE
VEHICLE LIVE LOAD = 4,840 LBS PER BASE PLATE

DEAD LOAD: BRIDGE STRUCTURE, CONCRETE DECK, FENCING, RAILING AND OTHER ANCILLARY FEATURES = 14,220 LBS PER BASE PLATE (ASSUMED FOR SUPPORT DESIGN)

SEISMIC LOAD: (UNFACTORED)	FIXED END	EXPANSION END
TRANSVERSE	2,930 LBS	2,930 LBS (UPLIFT)
LONGITUDINAL	5860 LBS	0 LBS

WIND LOAD: (UNFACTORED)	FIXED END	EXPANSION END
VERTICAL (WINDWARD)	7,910 LBS (UPLIFT)	7,910 LBS (UPLIFT)
VERTICAL (LEEWARD)	200 LBS (UPLIFT)	200 LBS (UPLIFT)
TRANSVERSE	3660 LBS	3600 LBS

CONCRETE: ALL CONCRETE SHALL BE MODIFIED CLASS D (MAJOR) WITH f'c = 4500 PSI AND A MAXIMUM WATER-CEMENT RATIO OF 0.45. USE CEMENT PER ASTM C-150 TYPE V. CONCRETE FOR DRILLED SHAFTS SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 3/4". ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4", UNLESS NOTED OTHERWISE. SEE SPECIAL PROVISIONS.

CONCRETE: CONCRETE BRIDGE ABUTMENT AT EXPOSED FINISHED SURFACE TO BE INTEGRALLY COLORED DAVIS #61078 'ADOBE' TO MATCH ADJACENT PAVING.

REINFORCING STEEL: ALL REINFORCING STEEL SHALL BE ASTM A706, GRADE 60. DIMENSIONS RELATING TO BAR SPACING ARE CENTER TO CENTER. BENDING DIMENSIONS ARE FROM OUT TO OUT OF THE BARS. MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 3" WHERE CONCRETE IS POURED AGAINST EARTH AND 2" ELSEWHERE, UNLESS NOTED OTHERWISE. HOOKS MAY BE ROTATED OR TILTED AS NECESSARY TO PROVIDE PROPER CLEARANCES.

MASONRY: MASONRY UNITS SHALL CONFORM TO ASTM C-90, GRADE N-1 MEDIUM WEIGHT HOLLOW CONCRETE UNITS. MASONRY DESIGN STRESS IS AS FOLLOWS: f'm=1500 psi. MORTAR SHALL CONFORM TO ASTM C270, TYPE "M" OR "S" WITH A MINIMUM STRENGTH OF 1800 psi AT 28 DAYS. GROUT SHALL HAVE A MINIMUM STRENGTH OF 2000 psi AT 28 DAYS. CEMENT SHALL CONFORM TO ASTM C-150 TYPE V. SOLID GROUT ALL MASONRY UNITS.

EXISTING UTILITIES: CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES (SHOWN OR OTHER) IN WORK AREA AND PROVIDING PROTECTION FOR SUCH BEFORE PROCEEDING.

ANCHOR BOLTS: 3/4"ø J- OR L-BOLT, F1554 GR. 36 WITH HEF = 4.125"

SPECIAL INSPECTION:

	CONTINUOUS MONITORING	PERIODIC MONITORING
FOUNDATION SOILS, EXCAVATIONS, FILL MATERIALS		X
PLACEMENT AND COMPACTION OF FILL	X	
REBAR PLACEMENT IN CONCRETE		X
VERIFICATION OF CONCRETE MIX DESIGN		X
SAMPLING OF FRESH CONCRETE AND PLACEMENT	X	
MASONRY QUALITY ASSURANCE	LEVEL B	

1. SPECIAL INSPECTIONS ARE TO BE PERFORMED BY QUALIFIED FIRMS OR PERSONNEL. THE SPECIAL INSPECTOR MUST BE CERTIFIED BY CLARK COUNTY IN THE CATEGORY OF WORK REQUIRED TO HAVE SPECIAL INSPECTION.
2. THE CONSTRUCTION MATERIALS TESTING LABORATORY MUST BE APPROVED BY CLARK COUNTY, FOR TESTING OF MATERIALS, SYSTEMS, COMPONENTS, AND EQUIPMENTS.
3. AS IDENTIFIED WITHIN THE CONTRACT DOCUMENTS, AND THE IBC 2012 BUILDING CODE CHAPTER 17. THE SPECIAL INSPECTORS SHALL MAINTAIN RECORDS OF ALL INSPECTIONS PERTAINING TO THE PORTIONS OF WORK THEY ARE TO INSPECT. PROVIDE COPIES OF REPORTS TO THE OWNER AND ARCHITECT/ ENGINEER PERIODICALLY AND AS REQUIRED FOR ADEQUATE COMMUNICATION AS WORK PROGRESSES.
4. THE SPECIAL INSPECTOR SHALL MAINTAIN A CURRENT "ERROR LOG" WHICH SHALL TRACK ALL WORK NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, SHALL TRACK WHEN WORK ITEMS NOT IN COMPLIANCE HAVE BEEN CORRECTED OR WHEN ITEMS HAVE BEEN ACCEPTED, IN WRITING, AS CONSTRUCTED BY THE ENGINEER OF RECORD.

CLV #107Y6769

STATE OF NEVADA PROFESSIONAL ENGINEER ERIC G. GILES Exp. 06/30/2018 No. 14570 STRUCTURAL DATE: 7/7/17

REV	DATE	DESCRIPTION	DATE	AGEN APP	DATE	GOW APP
1	4/12/17	ADD PED. BRIDGE ABUTMENT/FOOTING GRADING & STRUCTURAL SHEET, ADJUST TOP ALIGNMENTS & GRADING NEAR BRIDGE FOUNDATION STRUCTURES. ADJUST MAINTENANCE ACCESS ROAD ALIGNMENT. ADJUST MAINTENANCE ROAD ALIGNMENT AND GRADING AROUND MAINTENANCE ROAD. ADJUST PARCEL C. STORM DRAIN STUB.	7/6/17	SB		

PROJECT NO. 62024-232

DESIGN: MDB
DRAWN: MDB
CHECK: JLJ
PLOT DATE: 07-07-17
PLOT TIME: 10:43:06

GCV ENGINEERS \ SURVEYORS
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LAS VEGAS, NV 89146
T: 702.804.2000
F: 702.804.2299
gcvengineering.com

F:\Projects\600\62024-226-2\DWG\Production\V24-226-2_S.dwg
Lupe Orocio

THE HOWARD HUGHES COMPANY, LLC

VILLAGE 24 - US WATERS
COS-2 WASH IMPROVEMENT PLANS

PEDESTRIAN BRIDGE
GENERAL NOTES AND ABUTMENT PLAN

DRAWING
19
19 OF 19 SHTS

H#68365