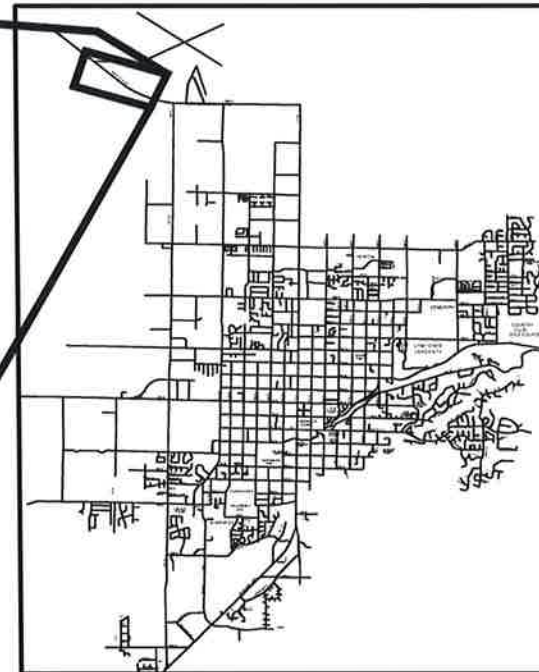
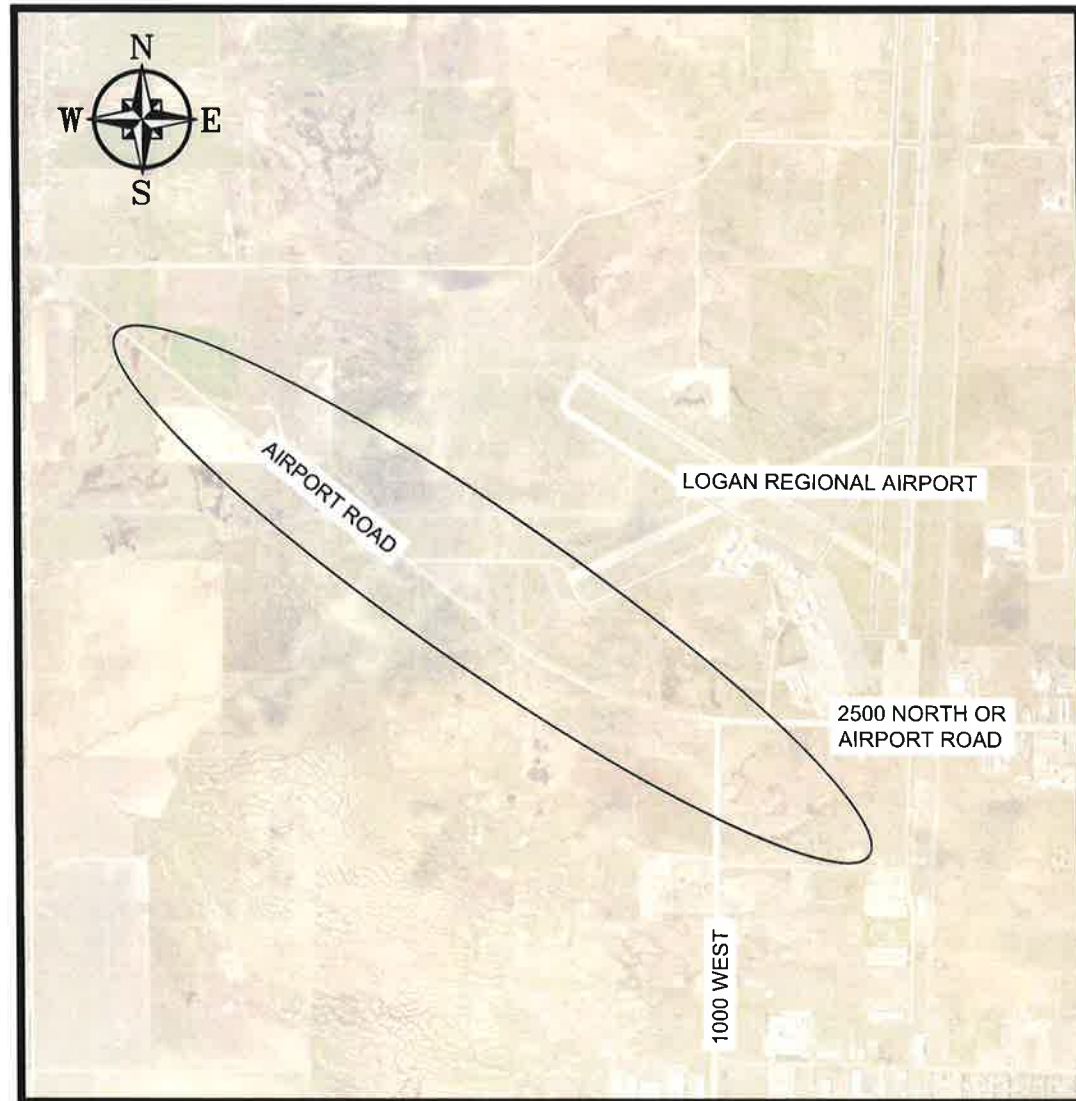


CITY OF LOGAN

AIRPORT ROAD RECONSTRUCTION CEMENT TREATED ROADBASE ROAD PROJECT PROJECT NUMBER: ENG# 18046



PROJECT LOCATION

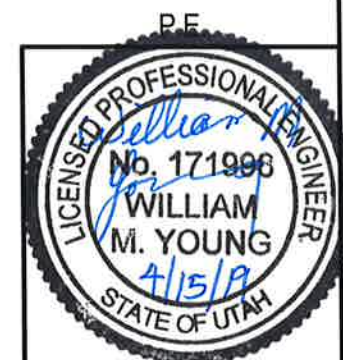


THESE PLANS HAVE BEEN REVIEWED AND APPROVED BY THE FOLLOWING:

PUBLIC WORKS DIRECTOR: Paul Lindhardt 4-15-19
 PAUL LINDHARDT, P.E. DATE

STREETS DIVISION MANAGER: Jed Al-Imari 04-15-2019
 JED AL-IMARI DATE

CITY ENGINEER: Bill Young 4/15/19
 BILL YOUNG, P.E. DATE



LOGAN CITY ENGINEERING
290 NORTH 100 WEST
LOGAN, UTAH 84321

DESIGNED: TCADY	DATE: 15-Apr-19
DRAFTED: TCADY	PROJECT: 18046
CHECKED: BYOUNG	REVISION: ----

SHEET INDEX

Sheet Name	Description
Cover	
GN1	GENERAL NOTES
SN1	SPECIAL NOTES
SW1	STORMWATER POLLUTION PREVENTION INFORMATION
S1	SURVEY CONTROL
RD-01	ROADWAY OVER VIEW
RD-02	ROADWAY STA 0+00 - STA 9+00
RD-03	ROADWAY STA 9+00 - STA 18+00
RD-04	ROADWAY STA 18+00 - STA 27+00
RD-05	ROADWAY STA 27+00 - STA 36+00
RD-06	ROADWAY STA 36+00 - STA 45+00
RD-07	ROADWAY STA 45+00 - STA 54+00
RD-08	ROADWAY STA 54+00 - STA 63+00
RD-09	ROADWAY STA 63+00 - STA 67+00
DT-01	ROAD CROSS SECTION

GENERAL NOTES

STANDARDS AND SPECIFICATIONS

- ALL CONSTRUCTION SHALL MEET CITY OF LOGAN STANDARDS AND SPECIFICATIONS (APWA 2007, AS AMENDED BY LOGAN CITY AS OF DATE APPROVED FOR CONSTRUCTION BY ENGINEER). UNLESS OTHERWISE NOTED. STANDARDS AND SPECIFICATIONS CAN BE VIEWED AND PRINTED AT: [HTTP://WWW.LOGANUTAH.ORG/GOVERNMENT/DEPARTMENTS/PUBLIC_WORKS/ENGINEERING/ENGINEERING_DOCS.PHP](http://www.loganutah.org/government/departments/public_works/engineering/engineering_docs.php)
- ANY AMBIGUITIES OR CONFLICTS IDENTIFIED BY THE CONTRACTOR, CONTRACTOR'S REPRESENTATIVE, ENGINEER, OR ENGINEER'S REPRESENTATIVE SHALL BE IDENTIFIED TO THE ENGINEER IMMEDIATELY. THESE SHALL BE RESOLVED AT NO ADDITIONAL COST TO THE CITY BASED ON THE FOLLOWING ORDER OF PRECEDENCE (PER APWA 2007 SECTION 00 72 00, PART 3, SECTION 3.3) EXCEPT AS NOTED HEREIN:
 - CONTRACT FOR CONSTRUCTION (FROM BID DOCUMENTS)
 - MODIFICATIONS, ADDENDUMS, OR CHANGE ORDERS SHALL TAKE PRECEDENCE OVER ALL PREVIOUS MODIFICATIONS, ADDENDUMS, OR CHANGE ORDERS.
 - APWA 2007 GENERAL CONDITIONS SECTION 00 72 00 AS AMENDED BY LOGAN CITY
 - SPECIAL OR SUPPLEMENTAL SPECIFICATIONS
 - PLANS (DRAWINGS)
 - WRITTEN DIMENSIONS OVER MEASURED DIMENSIONS
 - SPECIAL DETAILS OVER PLANS AND PROFILES EXCEPT THAT LOGAN CITY STANDARD DETAILS SHALL TAKE PRECEDENT OVER CONSTRUCTION DETAILS UNLESS STATED OTHERWISE BY CITY ENGINEER.
 - STORM WATER POLLUTION PREVENTION PLAN AND OTHER PERMITS
 - LOGAN CITY AMENDMENTS TO APWA 2007 STANDARD DRAWINGS
 - LOGAN CITY AMENDMENTS TO APWA 2007 STANDARD SPECIFICATIONS
 - APWA 2007 STANDARD DRAWINGS
 - APWA 2007 STANDARD SPECIFICATIONS
- CONTRACTOR IS SOLELY RESPONSIBLE TO REVIEW AND FULLY UNDERSTAND THE PLANS DURING BIDDING. DEVIATIONS OR DISCREPANCIES ARE TO BE IDENTIFIED DURING BIDDING IF AND WHEN IDENTIFIED.

SAFETY IN THE WORK ZONE

- ALL PERSONNEL ARE REQUIRED TO WEAR A MINIMUM OF HARD-HATS, STEEL TOE BOOTS AND SAFETY GLASSES WITHIN THE WORK ZONE.
- ORANGE OR FLORESCENT YELLOW VESTS OR CLOTHING SHALL BE WORN WHILE WORKING ON THIS PROJECT COMPLIANT WITH THE FOLLOWING:
 - CLASS 3 WHILE WORKING AT NIGHT WITHIN UDOT RIGHT-OF-WAY OR WHERE VEHICLE VELOCITIES MAY EXCEED 50 MPH.
 - CLASS 2 WHILE WORKING WITHIN LOGAN CITY RIGHT-OF-WAY AND WHERE VEHICLE VELOCITIES ARE LESS THAN 50 MPH.
- ALL TRENCHING SHALL BE IN COMPLIANCE WITH OSHA 29 CFS, PART 1926. ALL SOILS SHALL BE CONSIDERED TYPE C WHILE PREPARING TRENCH SHORING CALCULATIONS UNLESS GEOTECHNICAL REPORT SPECIFIES A TYPE D.
- CONFORM TO ALL OTHER APPLICABLE OSHA RULES AND REGULATIONS WHILE WORKING ON THIS PROJECT.

EXISTING UTILITIES

- UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE ONLY.
- CONTRACTOR SHALL FIELD VERIFY ALL UTILITY LOCATIONS BY CONTACTING BLUE STAKES AT 1-800-662-4111 OR 811 AND OTHER APPLICABLE UTILITIES PRIOR TO EXCAVATION.
- THE EXISTING UTILITIES ON THIS JOB ARE CANAL CROSSINGS FROM THE BENSON CANAL COMPANY.

PERMITS

- CONTRACTOR SHALL COMPLY WITH THE TERMS OF ALL PERMITS REQUIRED FOR THIS PROJECT.
- CONTRACTOR SHALL OBTAIN AND KEEP COPIES OF ALL REQUIRED PERMITS AT PROJECT LOCATION DURING REASONABLE WORKING HOURS.
- CONTRACTOR SHALL OBTAIN A WORK IN THE RIGHT OF WAY PERMIT (CITY OF LOGAN) PRIOR TO INITIATING ANY SITE DISTURBANCE OR CONSTRUCTION IN LOGAN CITY RIGHT OF WAY.
- LOGAN CITY WILL OBTAIN AN EROSION WAIVER FROM THE STATE OF UTAH.
- IF DEWATERING IS REQUIRED, CONTRACTOR SHALL OBTAIN DEWATERING PERMITS FROM THE STATE OF UTAH DIVISION OF WATER QUALITY AND COMPLY WITH ALL STATE REQUIREMENTS.
- CONTRACTOR SHALL OBTAIN A LOGAN CITY LAND DISTURBANCE PERMIT.

CONSTRUCTION NOTES

SURVEY AND CONSTRUCTION STAKING

- CONTRACTOR SHALL PROVIDE ALL SURVEY FOR THE PROJECT BY A LICENSED PROFESSIONAL SURVEYOR WHO IS LICENSED IN THE STATE OF UTAH. SURVEY WILL INCLUDE (IF REQUIRED IN THESE PLANS) BUT NOT BE LIMITED TO:
 - CONSTRUCTION STAKING, INCLUDING CREATING ALL STAKE OUT FILES.
 - UTILITY LOCATIONS
 - PROVIDE SURVEY FOR UTILITY RELOCATION FOR UTILITY PROVIDERS
 - ROW AND ROAD CENTERLINE MARKERS (CITY PROVIDED PER CITY SURVEYOR)
 - LIMIT OF DISTURBANCE
 - SURVEY AND MARKING OF BOUNDARY OF WETLANDS TO BE PROTECTED
 - AREAS AND LIMITS OF DEMOLITION
 - VERIFICATION OF QUANTITIES FOR EACH PAYMENT REQUEST
- SURVEYOR SHALL PROVIDE COMPLETE RECORD DRAWINGS (INCLUDING RED LINE DRAWINGS WITH SURVEY POINTS VERIFYING LOCATIONS) SHOWING WHERE ANY CHANGES IN THE ORIGINAL DESIGN WHERE REQUIRED. FINAL PUNCH LISTS AND FINAL PAYMENTS SHALL NOT BE MADE UNTIL RECORD DRAWINGS HAVE BEEN RECEIVED, REVIEWED, CORRECTED WHERE REQUIRED, AND APPROVED BY ENGINEER.
- ALL SURVEY CONTROL DATA ARE INCLUDED ON SHEET S1. FILES WILL BE MADE AVAILABLE TO SURVEYOR FROM CITY AS NEEDED.

ACCESS RESTRICTIONS, ROAD AND LANE CLOSURES, PEDESTRIAN ACCESS AND TRAFFIC CONTROL PLAN

- CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN, ADEQUATE TRAFFIC CONTROL, SIGNING, BARRICADING, AND PEDESTRIAN DIRECTION THROUGH AND AROUND THE CONSTRUCTION WORK ZONE IN COMPLIANCE WITH THE UDOT MUTCD AS REQUIRED BY UTAH STATE LAW (R920-1).
- THE TRAFFIC CONTROL PLANS SHALL BE PROVIDED TO THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO THE PRE-CONSTRUCTION MEETING TO ALLOW REVIEW FOR APPROVAL. COMMENTS AND REQUIRED CHANGES SHALL BE PROVIDED AT THE PRE-CONSTRUCTION MEETING. ALL CORRECTIONS SHALL BE INCORPORATED INTO THE TRAFFIC CONTROL PLAN BEFORE A WORK IN THE RIGHT-OF-WAY PERMIT WILL BE ISSUED.
- CONTRACTOR SHALL INSTALL AND MAINTAIN ALL TRAFFIC CONTROL AS PART OF THIS PROJECT.
- CONTRACTOR SHALL INSPECT TRAFFIC CONTROL DAILY TO ENSURE A SAFE WORK ZONE.
- ANY SIGNIFICANT MODIFICATIONS TO THE TRAFFIC CONTROL PLAN DURING CONSTRUCTION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION.
- PROPERTY OWNERS, RESIDENTS, AND BUSINESSES SHALL BE GIVEN 48 HOURS NOTICE OF DRIVEWAY ACCESS RESTRICTIONS DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING HOMEOWNERS, RESIDENTS, AND BUSINESSES AS ACCESSES ARE IMPACTED.
- ACCESS TO ALL BUSINESSES WITHIN THE PROJECT AREA SHALL BE COORDINATED WITH BUSINESS OWNERS AND REASONABLY MAINTAINED DURING CONSTRUCTION.
- CONTRACTOR SHALL PROVIDE NOTICE OF ROAD CLOSURE TO LOCAL AREA BUSINESSES WITH 2 SEPARATE VMS BORDERS 14-DAYS IN ADVANCE OF CLOSURE.
- CONTRACTOR SHALL COORDINATE LANE CLOSURES AND PARTIAL AND COMPLETE ROAD CLOSURES WITH THE ENGINEER.
- CONTRACTOR SHALL NOTIFY EMERGENCY SERVICES, CACHE VALLEY TRANSIT AUTHORITY, LOGAN CITY ENVIRONMENTAL DEPARTMENT, USU POLICE, AGGIE SHUTTLE, AND THE SCHOOL DISTRICT OF CLOSURE AT LEAST 48- HOURS PRIOR TO CLOSURE. THROUGH TRAFFIC MUST BE MAINTAINED TO THE GREATEST EXTENT REASONABLE AND SAFE.
- ROAD CLOSURE IS ALLOWED ON CONDITION OF CONTINUAL WORK IN THE ROADWAY. THE ROADWAY SHALL BE OPENED TO THROUGH TRAFFIC AT EVERY OPPORTUNITY WHEN CONDITIONS ARE SAFE AND WORK CREWS ARE NOT ACTIVELY WORKING IN THE ROADWAY.
- ALL CONSTRUCTION SHALL BE COMPLETED BY NO LATER THAN AUGUST 15TH 2019.
- THE ROAD MAY BE CLOSED COMPLETELY TO PERFORM THIS WORK. THE ROAD CLOSURE MAY BE FOR 15 CALENDAR DAYS ONCE CONSTRUCTION HAS BEGUN. AFTER THE 15 CALENDAR DAYS, THE ROADWAY MUST BE OPEN TO AT LEAST ONE-WAY TRAFFIC.

IRRIGATION AND CANAL IMPACTS

- DAMAGE OF EXISTING IRRIGATION SYSTEMS AND BOXES WILL BE REPAIRED BY CONTRACTOR.
- CONTRACTOR SHALL ENSURE PRIVATE IRRIGATION WATER DELIVERED BY CANAL COMPANIES IS AVAILABLE TO ALL USERS OF THE SYSTEM AT THEIR SCHEDULED TIMES OF USE. COORDINATE INTERRUPTIONS WITH INDIVIDUAL USERS.
- CONTRACTOR SHALL COORDINATE METHOD OF IRRIGATION DELIVERY DURING CONSTRUCTION WITH INDIVIDUAL PROPERTY OWNERS PRIOR TO INITIATING CONSTRUCTION. ALL METHODS OF MITIGATING IMPACT SHALL BE APPROVED IN WRITING BY WATER USERS, OR THEIR DESIGNATED REPRESENTATIVE, PRIOR TO INITIATING DISTURBANCE.
- AUTHORIZED USERS OF THE IRRIGATION SYSTEM SHALL BE GIVEN 48 HOURS NOTICE PRIOR TO INTERRUPTIONS TO IRRIGATION SYSTEM.

QUALITY CONTROL TESTING

- CONTRACTOR SHALL EMPLOY AN APPROVED QUALITY CONTROL TESTING AGENCY TO PROVIDE TESTING FOR THE SITE IN ACCORDANCE WITH THE APPROPRIATE SECTIONS OF APWA MANUAL OF STANDARDS AND SPECIFICATIONS AS AMENDED BY LOGAN CITY.
- THE CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE PROCTOR, GRADATION, AND CBR VALUES FOR PROPOSED GRANULAR BACKFILL BORROW AND UNTREATED BASE COURSE AT THE PRE-CONSTRUCTION MEETING. COMPACTION TESTS SHALL BE PROVIDED AT LEAST AT THE INTERVALS REQUIRED IN APWA 2007 STANDARD SPECIFICATIONS AS AMENDED BY LOGAN CITY.
- CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE ASPHALT TESTING INCLUDING NUCLEAR DENSITY TESTING FOR COMPACTION AND OTHER FIELD TESTS REQUIRED BY APWA SECTION 32 12 16, ACCEPTANCE. PATCH ALL ASPHALT CORE SAMPLES WITH CONCRETE.
- CONTRACTOR QUALITY CONTROL TESTING AGENCY SHALL PROVIDE CONCRETE TESTING INCLUDING AIR, SLUMP, 7 DAY BREAK TEST, AND 28 DAY BREAK TESTS AS REQUIRED BY APWA SECTION 03 30 05.
- FIELD TEST RESULTS SHALL BE IMMEDIATELY SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN, THE DESIGNATED PUBLIC WORKS INSPECTOR FOR THE PROJECT, AND A COPY OF EACH REPORT KEPT ONSITE. EACH FAILED FIELD TEST AND ITS CORRESPONDING PASSING TEST SHALL BE CLEARLY IDENTIFIED IN EACH FIELD TEST REPORT.
- LABORATORY TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN WITHIN 48 HOURS OF DETERMINATION.
- A FINAL SUMMARY REPORT, IN TABULAR FORM, SHALL BE SUBMITTED TO THE ENGINEER FOR THE CITY OF LOGAN PRIOR TO FINAL ACCEPTANCE OF THE PROJECT. THE FINAL SUMMARY REPORT SHALL INCLUDE TABULAR RESULTS SHOWING EACH FAILED TEST AND ITS CORRESPONDING PASSING TEST.
- FOR QUALITY CONTROL ON MILLING AND CEMENT TREATED BASE SEE BID DOCUMENTS SECTION ON SUPPLEMENTAL SPECIFICATION PAGE # 36.

SHEET NO:

GN1

SCALE
NO SCALE

1"
VERIFY SCALE
SCALE = 1/2" SHOWN SCALE
IF PLOTTED ON B SIZE PAPER

REVISION BLOCK

DATE: 15-Apr-19

ENG # 18046

DESIGNED: TCADY

DRAFTED: TCADY

CHECKED: BTOUNG

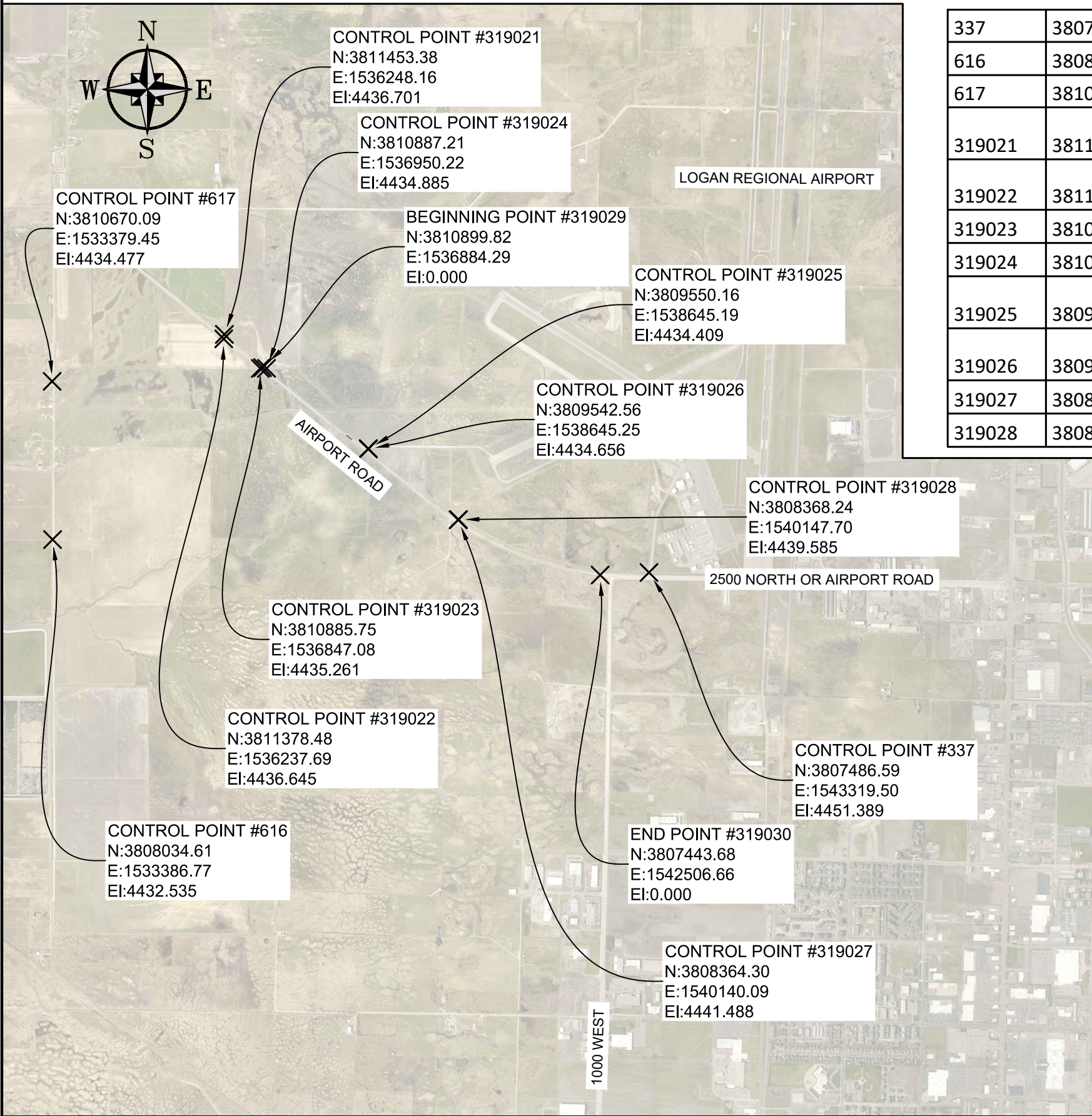
AIRPORT ROAD RECONSTRUCTION

GENERAL NOTES

LOGAN CITY ENGINEERING
290 NORTH 100 WEST
LOGAN, UTAH 84321

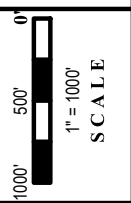


SURVEY CONTROL TABLE



337	3807486.59	1543319.504	4451.389	2500N AT AIRPORT DR._GPS MON. 337_NW 42
616	3808034.61	1533386.766	4432.535	2400W_CC MON 13_CC BCM_W 1/4 S18
617	3810670.09	1533379.452	4434.477	2400W_CC MON 17_CC BCM_NW S18
319021	3811453.38	1536248.163	4436.701	AIRPORT RD_RBR 5/8-YPC LS 167819 HANSEN AND ASS.
319022	3811378.48	1536237.688	4436.645	AIRPORT RD_USGS 4 BCM IN CONCRETE_4EAM 1963
319023	3810885.75	1536847.08	4435.261	AIRPORT RD_RBR 5/8-YPC LS 325023 JSH
319024	3810887.21	1536950.219	4434.885	AIRPORT RD_RBR 5/8-YPC LS 325023 JSH
319025	3809550.16	1538645.186	4434.409	AIRPORT RD_RBR 5/8-YPC LS 5152661 HANSEN AND ASS.
319026	3809542.56	1538645.249	4434.656	AIRPORT RD_RBR 5/8-YPC LS 5152661 HANSEN AND ASS.
319027	3808364.3	1540140.09	4441.488	AIRPORT RD_RBR 5/8-RPC KNIGHTON AND CROW
319028	3808368.24	1540147.695	4439.585	AIRPORT RD_RBR 5/8-RPC LS 5152661 FORESIGHT

1. ALL CONTROL IS TIED TO LOGAN CITY MONUMENTS.
2. DIGITAL FILES IN CIVIL 3D (2017) WILL BE PROVIDED TO THE SURVEYOR TO SIMPLIFY STAKING. DESIGN FILES INCLUDE ALIGNMENTS AND PROFILES FOR ALL TBC'S AND CENTER LINES.



PROJECT SPECIFIC NOTES

GRANULAR BORROW - NOT INCLUDED IN MEASUREMENT AND PAYMENT

1. GRANULAR BORROW SHALL BE IN ACCORDANCE WITH APWA SECTION 31 05 13 WITH A MAXIMUM PARTICLE SIZE OF 3 INCHES. GRANULAR BACKFILL BORROW CONSIST OF AN A-1-A AND A-1-B (ASTM D3282) SOIL.
2. GRANULAR BORROW SHALL HAVE A MINIMUM CBR VALUE OF 45.
3. GRANULAR BORROW SHALL BE PLACED AS PER APWA STANDARDS AND SPECIFICATIONS.

UNTREATED BASE COURSE

1. PIPE ZONE AND BEDDING AND BACKFILL SHALL BE UNTREATED BASE COURSE MATERIAL CLASS A, B, OR C, GRADE $\frac{3}{4}$ IN COMPLIANCE WITH APWA SECTION 32 11 23.
2. UNTREATED BASE COURSE MATERIAL USED FOR ROADWAY, CURB AND GUTTER, AND SIDEWALKS SHALL BE CLASS A, GRADE $\frac{3}{4}$ OR GRADE 1, WITH A MINIMUM CBR VALUE OF 70 IN COMPLIANCE WITH APWA SECTION 32 11 23.

HOT MIX ASPHALT

1. SEE DETAIL ON DT-01 FOR SPECIFIC CROSS SECTION INFORMATION.
2. PROVIDE LOGAN CITY WITH SPECIFIED AND SELECTED ASPHALT MIX DESIGNS, AND SELECTED PRIME COAT AND TACK COAT AT PRE-CONSTRUCTION MEETING.
3. ALL HOT MIX ASPHALT IN LOGAN CITY RIGHT OF WAY SHALL BE PG 58-28, DM-1/2, MARSHALL MIX PER 2017 APWA 32 12 05.
4. MIX DESIGN SHALL BE 50 BLOW MARSHALL.
5. RAP CONTENT IS LIMITED TO 15%.
6. MIX DESIGN MUST MEET HAMBURG WHEEL TRACKER OF 15MM IMPRESSION AT 10,000 PASSES.
7. APPLY TACK COAT, COMPLIANT WITH 2017 APWA SECTION 32 12 14, BETWEEN LAYERS OR LIFTS IF THE PREVIOUS PAVEMENT LAYER IS DIRTY OR OLDER THAN 24 HOURS PER 2017 APWA SECTION 32 12 16.

ASPHALT AND CONCRETE SAW CUTS AND PATCHES

1. ALL ASPHALT AND CONCRETE CUT LOCATIONS REPRESENT FINISHED LOCATIONS. CUTS ARE TO BE NEAT, CLEAN, AND VERTICAL PRIOR TO PATCHING ASPHALT OR CONCRETE.
2. SAW CUTS AND FINISHED EDGES, INCLUDING CONCRETE, SHALL BE CLEANED OF OIL, DIRT, AND DEBRIS PRIOR TO APPLICATION OF TACK COAT.
3. ANY SAW CUTS REQUIRED PRIOR TO THE FINAL PATCH TO FACILITATE CONSTRUCTION ARE CONTRACTOR WAYS AND MEANS AND WILL NOT BE PAID IN ADDITION TO THE FINAL CUTS. ADDITIONALLY, ANY DAMAGE TO THE SAW CUT EDGE SHALL BE REPAIRED TO MEET LOGAN CITY REQUIREMENTS AT NO ADDITIONAL EXPENSE TO THE CITY.
4. ALL SAW CUT EDGES AND FINISHED EDGES SHALL BE TREATED WITH A TACK COAT PRIOR TO THE PLACEMENT OF ASPHALT IN ACCORDANCE WITH APWA SECTION 32 12 14.

ROADWAY STANDARD SECTION.


1. PULVERIZE EXISTING ASPHALT AND EXISTING ROAD BASE.
2. PULVERIZE 8-INCHES DEEP.
3. HOT MIX ASPHALT PG 58-28, DM $\frac{1}{2}$ MARSHALL MIX PER 2017 APWA 32 12 05, ALSO SEE HOT MIX ASPHALT SECTION.
4. ASPHALT COMPACTION TESTS BY NUCLEAR DENSITY TESTING DURING PLACEMENT TO ENSURE A HIGH QUALITY ROAD.
5. ROAD CROSS SECTION SHALL CONSIST OF TWO 12-FOOT LANES AND TWO 2-FOOT SHOULDERS.
6. SUPPLEMENTAL SPECIFICATION 32 11 24 FOR PULVERIZED PAVEMENT BASE CAN BE FOUND IN THE BID DOCUMENTS ON PAGE 36.

SIGNING AND STRIPING.

1. ALL PAINT TO BE USED FOR STRIPING SHALL BE ACRYLIC WATER BASED PAINT OF THE SPECIFIED PIGMENT PER UDOT STANDARD SPECIFICATION 02765 WITH REFLECTORIZED BEADS.
2. APPLICATION RATES ARE AS DEFINED IN UDOT STANDARD SPECIFICATION 02765.
3. ALL SIGNS ON THIS PROJECT SHALL BE REINSTALLED UNLESS SPECIFIED OTHERWISE ON THE DESIGN DRAWING.
4. ALL NEW SIGNS SPECIFIED SHALL BE IN ACCORDANCE WITH UTAH MUTCD MOST CURRENT EDITION.

SHAPE AND FINISH SHOULDER OF ROADWAY.

1. 6-INCHES OF TOP SOIL SHALL BE PLACED AND GRADED OVER UNTREATED BASE COURSE.
2. SEED MIX SHALL BE PLACED (ALL CONTRACTORS SHALL OBTAIN SEED MIX FROM LOGAN CITY).
3. AT FINAL ACCEPTANCE, THE TOP SOIL SHALL BE "SURFACE ROUGHENED" OR "TRACKED" BY CRAWLER TRACTOR OR SIMILAR EQUIPMENT DRIVING UP AND DOWN THE SLOPE PROVIDING DEPRESSIONS PARALLEL TO CONTOURS.
8. TOPSOIL USED IN CONSTRUCT OR REPAIR DISTURBED OR NEW LANDSCAPING SHALL BE COMPLIANT WITH APWA SECTION 31 05 13, PART 2.9. CONTRACTOR SHALL PROVIDE SOURCE, GRADATION, AND VERIFICATION OF CHEMICAL CHARACTERISTICS AND PHYSICAL CHARACTERISTICS AT PRE-CONSTRUCTION MEETING.

SHEET NO: SN1	
SCALE NO SCALE	VERIFY SCALE 1" SCALE = 1/2" SHOWN SCALE IF PLOTTED ON B SIZE PAPER
REVISION BLOCK	
DESIGNED: TCADY	DATE: 15-Apr-19
DRAWN: TCADY	ENG #: 18046
CHECKED: BTJUNG	
AIRPORT ROAD RECONSTRUCTION	
SPECIAL NOTES	
LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321	
	

STORM WATER POLLUTION PREVENTION INFORMATION

SITE EVALUATION, ASSESSMENT, AND PLANNING

PROJECT SITE/NAME: AIRPORT ROAD RECONSTRUCTION
 PROJECT LOCATION: AIRPORT ROAD OR 2500 NORTH IN LOGAN UTAH, SEE COVER SHEET
 CITY: LOGAN, UTAH 84321
 COUNTY: CACHE
 LATITUDE/LONGITUDE (GOGGLE EARTH)
 LAT: 41°46'41.57" NORTH LONG: 111°51'34.84" WEST

CONTACT INFORMATION AND RESPONSIBLE PARTIES:

OWNER: LOGAN CITY
 290 NORTH 100 WEST
 LOGAN, UT 84321
 (435) 716-9152 (PUBLIC WORKS)

PROJECT MANAGER:
 TYLER CADY E.I.T
 LOGAN CITY ENGINEERING
 290 NORTH 100 WEST
 LOGAN, UT 84321
 (435) 716-9162
 TYLER.CADY@LOGANUTAH.ORG

STORMWATER MANAGER AND SWPPP CONTACT
 TBD-THIS IS TO BE FILLED IN BY THE CONTRACTOR

LOGAN CITY REGULATORY STORMWATER INSPECTOR
 LYNN MAYS
 LOGAN CITY STREETS AND STORMWATER FOREMAN
 290 NORTH 100 WEST
 LOGAN, UT 84321
 (435) 716-9167 (DAY)
 (435) 716-9090 (AFTER HOURS EMERGENCY)
 LYNN.MAYS@LOGANUTAH.ORG

NATURE AND SEQUENCE OF CONSTRUCTION

THE CITY IS RECONSTRUCTING 1000 NORTH FROM 800 EAST TO STADIUM DRIVE, APPROXIMATELY TWO BLOCKS. THIS PROJECT WILL CONSIST OF REMOVING THE EXISTING CURB AND GUTTER, SIDEWALK, ASPHALT PARK STRIP, AND ASPHALT. CONSTRUCTION WILL INCLUDE A WATERLINE INTERCONNECTION BETWEEN TWO PRESSURE ZONES, ESTABLISHING GRADE FOR THE ROAD, CURB AND GUTTER, AND SIDEWALK, INSTALLING A STORM DRAIN SYSTEM ON THE NORTH AND SOUTH SIDES OF THE ROAD, RECONSTRUCTING THE NON-COMPLIANT ADA CORNERS, AND REPLACING THE ASPHALT.

BEST MANAGEMENT PRACTICES (BMPS) FOR ALL OF THE ACTIVITIES WILL BE APPLIED TO THE SITE TO PROTECT THE SOUTHWEST FIELD CANAL AND LOGAN RIVER FROM POSSIBLE CONTAMINATION. BI-WEEKLY INSPECTIONS SHALL BE PERFORMED BY THE CONTRACTOR'S RSI INSPECTOR FOR THE DURATION OF CONSTRUCTION.

THE FUNCTION OF THIS ACTIVITY IS PUBLIC.
 ESTIMATED START DATE: SPRING 2019
 ESTIMATED COMPLETION: AUGUST 15TH 2019

SOILS, SLOPES, VEGETATION, AND CURRENT DRAINAGE PATTERNS

THE SOILS ON THIS SITE ARE RICKS GRAVELLY LOAM, STERLING GRAVELLY LOAM, AND TIMPANOGOS SILT AS OBTAINED BY THE NRCS SOILS SURVEY WEBSITE. INFILTRATION RATES RANGE FROM 0.30 MM/SEC TO .015 MM/SEC. HOWEVER, INFILTRATION IN THIS AREA HAS BEEN CLOSELY CONNECTED TO THE FLOODING OF THE STADIUM AND OTHER PRIVATE AND PUBLICLY OWNED BUILDINGS HIGHLIGHTING A VERY LOW PERMEABILITY AQUITARD DEVELOPING A PERCHED AQUIFER SCENARIO.

SLOPES: SLOPES ON THIS PROJECT ARE FROM 2 TO 3 PERCENT. SITE CONDITIONS ARE NOT SUBJECT TO EROSION IN THEIR PRE-CONSTRUCTION CONDITION.

DRAINAGE PATTERNS: DRAINAGE PATTERNS ARE FROM EAST TO WEST

VEGETATION: VEGETATION IS DEVELOPED ASPHALT, GRAVEL, AND GRASS LANDSCAPING.

CONSTRUCTION SITE ESTIMATES

CONSTRUCTION SITE AREA TO BE DISTURBED: 4.13 ACRES
 TOTAL PROJECT AREA: 4.13 ACRES
 PERCENT IMPERVIOUS AREA BEFORE CONSTRUCTION: 98%
 PERCENT IMPERVIOUS AREA AFTER CONSTRUCTION: 98%
 RUNOFF CN NUMBER AFTER CONSTRUCTION: 98 SAME AS BEFORE CONSTRUCTION
 100-YEAR PEAK RUNOFF BEFORE CONSTRUCTION: 10.6 CFS
 100-YEAR PEAK RUNOFF AFTER CONSTRUCTION: 10.6 CFS
 DETENTION REQUIREMENTS: 0 ACRE-FEET

RECEIVING WATERS

THE RECEIVING WATER FOR THIS PROJECT IS THE BENSON CANAL AND SWIFT SLOUGH.

SITE FEATURES AND SITE SENSITIVE AREAS TO BE PROTECTED

THERE ARE NOT SITE SENSITIVE AREAS.

ENDANGERED SPECIES

THERE ARE NO ENDANGERED SPECIES ASSOCIATED WITH THIS SITE. IT IS ALL

DEVELOPED ROADWAY.

HISTORIC PRESERVATION

THERE ARE NO HISTORIC SITES LISTED ON THIS PROJECT

GENERAL LOCATION MAP

FOR THE GENERAL LOCATION MAP, SEE COVER SHEET.

BMP EVALUATION FOR 90TH PERCENTILE STORM

THE GENERAL STORMWATER MS4 PERMIT REQUIRES PERMITTED AGENCIES TO RETAIN, INFILTRATE, OR EVAPORATE THE 90TH PERCENTILE STORM WHERE POSSIBLE. THE ENGINEER HAS COMPLETED AN ANALYSIS ON THIS SITE AND HAS DETERMINED IT IS NOT POSSIBLE FOR THIS SITE FOR THE FOLLOWING REASONS:

1. THERE IS INSUFFICIENT RIGHT OF WAY TO CONSTRUCT ADDITIONAL STORM WATER BMPS TO RETAIN, INFILTRATE, OR EVAPORATE 0.66 INCHES OF WATER WITHIN THE PROJECT AREA AND BEFORE THE DISCHARGE INTO THE CANAL. ALTERNATIVES EVALUATED INCLUDED SURFACE BMPS SUCH AS RETENTION PONDS, MANY COMMON LID METHODS, AND INCREASED VEGETATIVE COVER.
2. THE NEIGHBORING PROPERTY IS ABOVE THE ELEVATION OF THE ROAD AND ALREADY DEVELOPED AS PART OF UTAH STATE UNIVERSITY. THIS ROAD IS A MAJOR CORRIDOR FOR UTILITIES, TELECOMMUNICATIONS, WATER, SEWER, AND ELECTRIC UTILITIES. THE DENSITY OF UTILITIES IS PREVENTING THE CITY FROM CONSTRUCTING UNDERGROUND DETENTION OR RETENTION FACILITIES. THE COST OF RELOCATING THESE UTILITIES WOULD BE UNREASONABLE.

AS A RESULT, THE ENGINEER HAS WORKED WITH U.S.U TO ADDRESS WATER QUALITY AND QUANTITY BY INSTALLING SUBSTANTIAL DETENTION AND TREATMENT FROM THE LARGE PARKING LOT BY STADIUM DRIVE AND ON THE PARKING AREA ASSOCIATED WITH THE SPECTRUM. THIS WILL BE A SIGNIFICANT IMPROVEMENT OVER THE EXISTING CONDITION BY REDUCING OVERALL EXISTING STORM WATER FLOWS BY ABOUT 30 CFS FROM THE SYSTEM AND TREATING THE STORM WATER FROM THE PARKING FOR THE REMOVAL OF NUTRIENTS AND SEDIMENTS.

REQUIREMENTS AND BMPS

1. LOGAN CITY WILL GET STORM WATER EROSION WAIVER FOR THIS SITE.
2. THE CONTRACTOR SHALL ENSURE THAT NO POLLUTION LEAVES THE DESIGNATED WORK ZONE BY IMPLEMENTING STANDARD BMP'S AND COMMON PRACTICES APPROVED BY THE ENGINEER AND DOCUMENTED IN THE SEDIMENT AND CONTROL PLAN.
3. CONTRACTOR SHALL NOT DISTURB ANY PORTION OF THE SITE UNTIL THE EROSION WAIVER AND SEDIMENT AND CONTROL PLAN ARE APPROVED BY THE LOGAN CITY STORM WATER INSPECTOR AND CONTRACTOR OBTAINS A LOGAN CITY LAND DISTURBANCE PERMIT.
4. BMPS SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITIES.

POTENTIAL SOURCES OF POLLUTION

POTENTIAL POLLUTANT MATERIAL	ACTUAL POLLUTANT	POLLUTANT SOURCE	MANAGEMENT PRACTICE
SEDIMENT/TOTAL SUSPENDED SOLIDS	SEDIMENT	EROSION OF DISTURBED SOILS	MINIMIZE SOIL DISTURBANCE. INSTALL BMPS
SOILS STABILIZATION MATERIAL	VARIOUS MATERIALS BOTH FLOATABLE AND SOLUBLE	DISTURBED AREAS WHERE SLOPES OR SUSCEPTIBLE SOIL TYPES ARE EXPOSED	INSTALL SEDIMENT CONTROL BMPS
CONCRETE-WHITE/SOLID GREY	LIMESTONE, SAND, pH, CHROMIUM	EXTRA CONCRETE WHEN POURING CONCRETE	CLEAN UP EXCESS AND EXTRA CONCRETE AND DISPOSE OF AT SPECIFIED LOCATION. SEE ALSO CONCRETE WASHOUT
OILS-BROWN OILY PETROLEUM AND HYDROCARBONS	MINERAL OIL, HYDRAULIC FLUID, MOTOR OIL, ETC.	VEHICLES AND EQUIPMENT USED IN CONSTRUCTION	NO OILS WILL BE CHANGED ON SITE. LEAKS WILL BE REPAIRED IMMEDIATELY.
ASPHALT AND PAVING - BLACK SOLIDS	OIL AND PETROLEUM DISTILLAGES	ASPHALT PAVING OPERATIONS	PAVING OPERATIONS WILL NOT BE PERFORMED WITHIN 8 HOURS OF EXPECTED STORMS EXCEEDING 0.5 INCH.
GREASE	GREASE AND LUBE OIL	VEHICLES AND EQUIPMENT USED IN CONSTRUCTION	KEEP EQUIPMENT CLEAN AND WIPED DOWN
ANTIFREEZE	ETHYLENE GLYCOL	ENGINE COLLUANT	FIX LEAKS IMMEDIATELY. REPAIRS WILL NOT BE MADE ON SITE
CONSTRUCTION DEWATERING	TSS/SEDIMENTS	DEWATERING ACTIVITIES	CONTRACTOR TO OBTAIN PERMIT IF DEWATERING IS REQUIRED.
FUELS	BENZENE, ETHYL BENZENE, TOULENE, XYLENE, MTBE, PETROLEUM DISTALLATE, OILS/GREASES, NAPHTHALEN, COAL OIL	USED IN VEHICLES AND POWER EQUIPMENT	FUELING WILL NOT BE ALLOWED ON SITE UNLESS OVER AN IMPERMEABLE SURFACE WITH AN EMERGENCY CLEANUP KIT AT THE LOCATION
PESTICIDES AND INSECTICIDES, FUNGICIDES, HERBICIDES, AND RODENTICIDES	CHLORINATED HYDROCARBONS, ORANOPHOSPHATES, CARBAMATES, ARSENIC	USED FOR CONTROL OF PESTS DURING REVEGETATION	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS OR LEFT OVER PESTICIDES WILL BE IMMEDIATELY REMOVED FROM SITE
CONCRETE CURING COMPOUNDS - CREAMY WHITE LIQUID	WHITE PIGMENTED LIQUID TYPE 2. (VARIES BY MANUFACTURER)	USED FOR CONTROL OF CONCRETE CURING	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS OR LEFT OVER WILL BE REMOVED FROM SITE
CONCRETE WASHOUT WATER	pH	CONCRETE TRUCKS AND PUMP TRUCKS	WASH WATER FROM CONCRETE TRUCKS WILL BE CONTAINED IN A LEAK PROOF LOCATION DESIGNATED BY THE CONTRACTOR
TRASH	SOLID WASTES	TRASH LEFT OVER FROM CONSTRUCTION ACTIVITIES	REMOVE ALL TRASH FROM SITE DAILY. DO NOT DISPOSE OF TRASH IN HOLES OR TRENCHES
SANITARY WASTE MANAGEMENT	BACTERIA, PARASITES, VIRUSES	FECAL COLIFORM, BACTERIA ASSOCIATED WITH HUMAN OR ANIMAL WASTES	NO PUBLIC RESTROOMS AVAILABLE. CONTRACTOR SHALL PROVIDE PORTABLE FACILITIES AND ENSURE THEY ARE SECURED FROM TIPPING AND ARE MAINTAINED
FERTILIZERS - LIQUID AND SOLID GRAIN	NITROGEN, PHOSPHORUS	FERILIZERS USED IN RESTORING VEGETATION	APPLICATION WILL BE PER MANUFACTURER INSTRUCTIONS. EXCESS WILL BE PROMPTLY REMOVED FROM SITE

BEST MANAGEMENT PRACTICES

SPECIFIC BMPS WILL BE SPECIFIED BY THE CONTRACTORS SWPPP.

SHEET NO:

SW1

SCALE NO SCALE

1" VERIFY SCALE SCALE = 1/2" SHOWN SCALE IF PLOTTED ON B SIZE PAPER

REVISION BLOCK

DATE: 15-Apr-19

ENG #: 18846

DESIGNED: TCADY

DRAWN: TCADY

CHECKED: BTOUNG

AIRPORT ROAD RECONSTRUCTION

STORM WATER POLLUTION PREVENTION INFORMATION

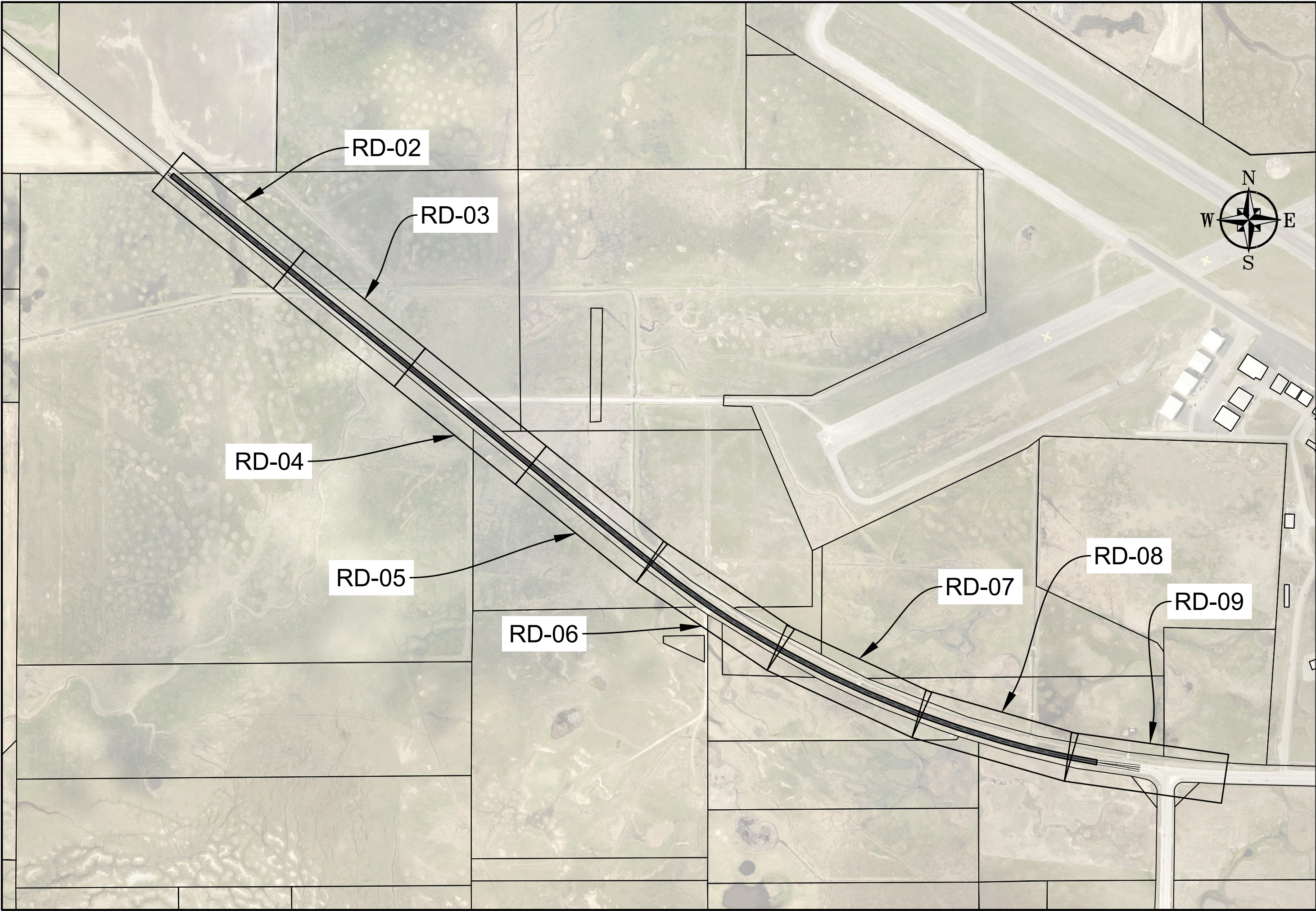
LOGAN CITY ENGINEERING

290 NORTH 100 WEST
 LOGAN, UTAH 84321



PRINT DATE/TIME: 4/15/19 9:29 AM

PROJECT FILE LOCATION: G:\public\Engineer\001 Engineering File System\PROJECTS 2018\ENG 18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg



RD-02

RD-03

RD-04

RD-05

RD-06

RD-07

RD-08

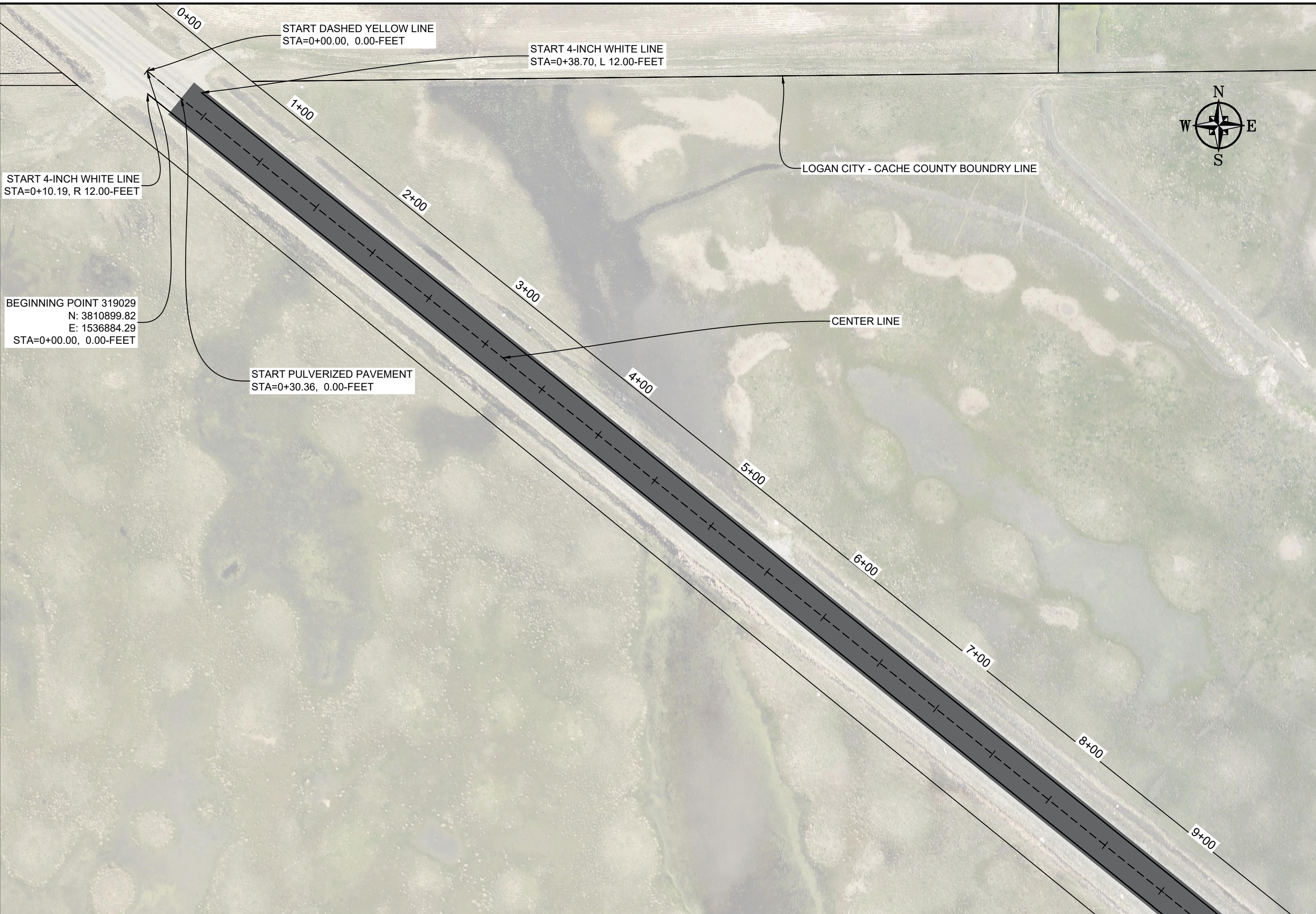
RD-09



		LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321		AIRPORT ROAD RECONSTRUCTION PROJECT OVER VIEW		DESIGNED: TCADY DRAFTED: TCADY CHECKED: BYOUNG	DATE: 15-Apr-19 ENG #: 18046	REVISION BLOCK # _____ # _____ # _____	SHEET NO: RD-01
				500' 250' 0' 1" = 500' SCALE					

PRINT DATE/TIME: 4/15/19 9:29 AM

PROJECT FILE LOCATION: G:\public\Engineer\00_Engineering File System\PROJECTS 2018\ENG 18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg



LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321		AIRPORT ROAD RECONSTRUCTION ROADWAY PLANS STA 0+00.00 TO STA 9+00.00		SHEET NO: RD-02	
DESIGNED: TCADY	DATE: 15-Apr-19	REVISION BLOCK	REVISION #	ENG #:	18046
DRAFTED: TCADY				CHECKED:	BYOUNG

PRINT DATE/TIME: 4/15/19 9:29 AM

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS 2018\ENG 18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg



SHEET NO:
RD-03



DESIGNED:	DATE:	REVISION BLOCK #
TCADY	15-Apr-19	
DRAFTED:	ENG #:	
TCADY	18046	
CHECKED:		
BY:		
BYOUNG		

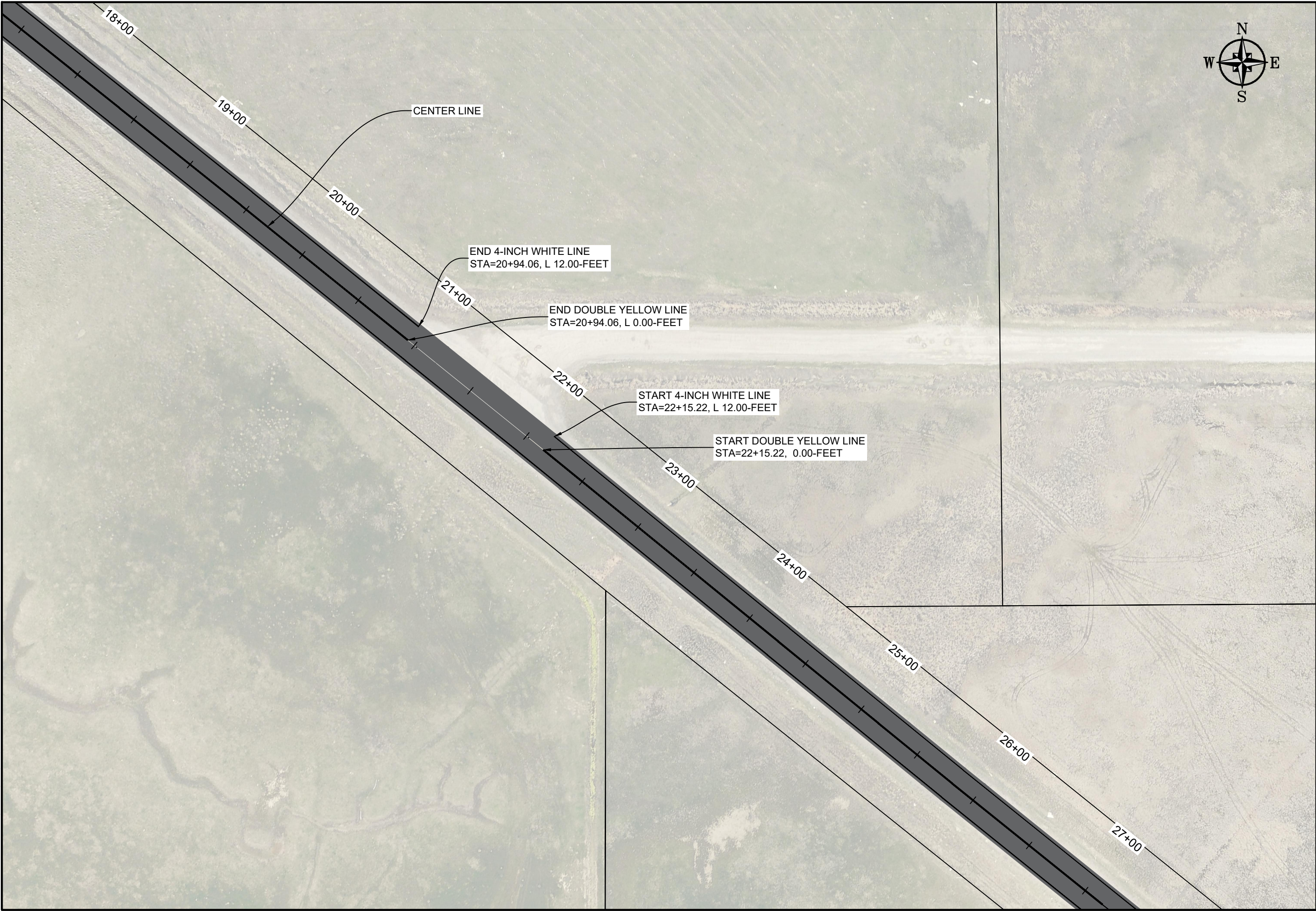
AIRPORT ROAD RECONSTRUCTION
ROADWAY PLANS
STA 9+00.00 TO STA 18+00.00

LOGAN CITY ENGINEERING
290 NORTH 100 WEST
LOGAN, UTAH 84321

LOGAN CITY UNITED IN SERVICE
PUBLIC WORKS DEPARTMENT

PRINT DATE/TIME: 4/15/19 9:29 AM

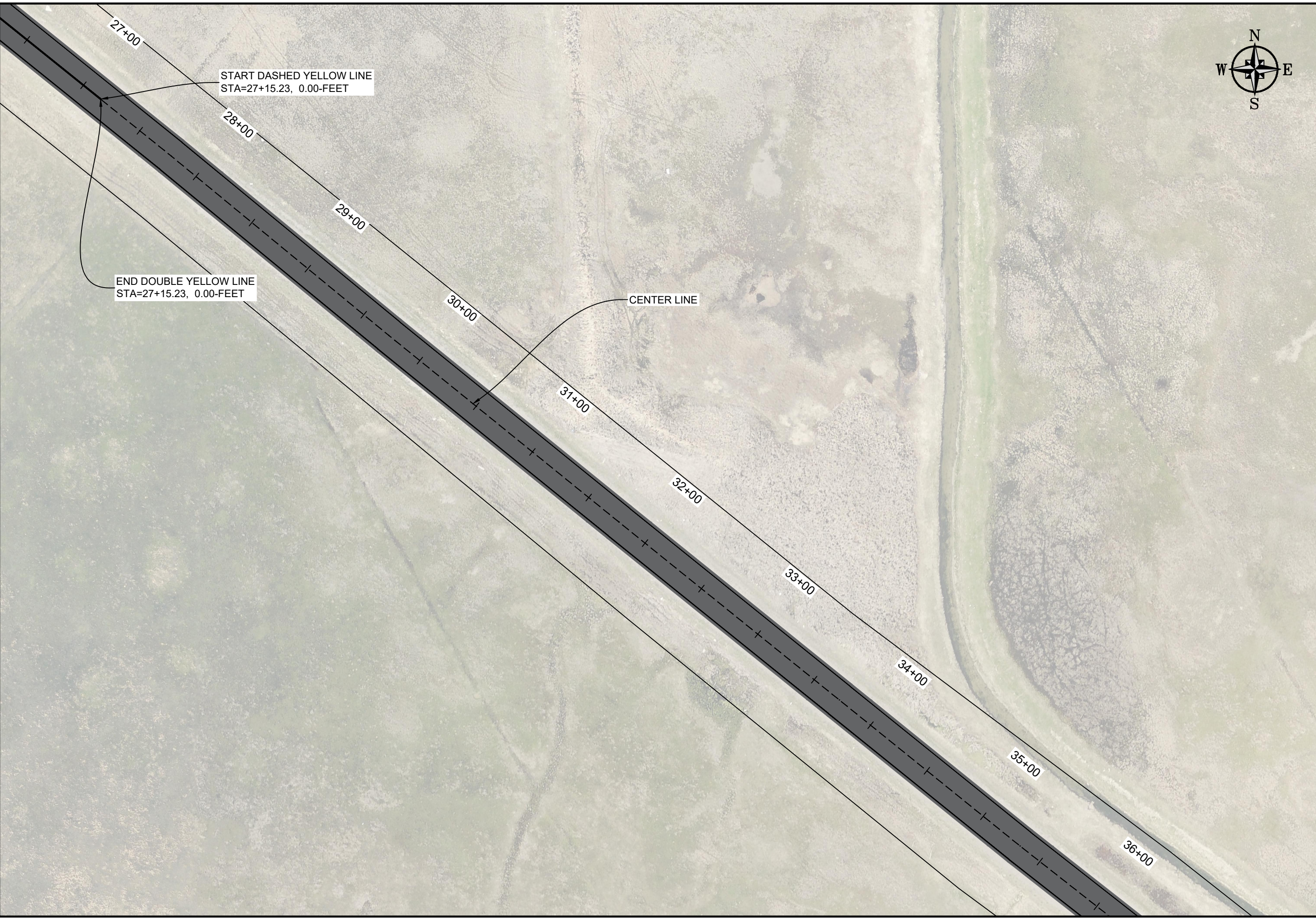
PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS 2018\ENG\18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg



<p>LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321</p>	<p>AIRPORT ROAD RECONSTRUCTION</p> <p>ROADWAY PLANS STA 18+00.00 TO STA 27+00.00</p>		<p>DESIGNED: TCADY</p> <p>DRAFTED: TCADY</p> <p>CHECKED: BYOUNG</p>	<p>DATE: 15-Apr-19</p> <p>ENG #: 18046</p>	<p>REVISION BLOCK</p> <table border="1"> <tr><td>#</td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table>	#								<p>SHEET NO: RD-04</p>
	#													
<p>LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321</p>			<p>1" = 60' SCALE</p>		<p>60' 30' 0'</p>									

PRINT DATE/TIME: 4/15/19 9:29 AM

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS 2018\ENG 18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg





<p>LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321</p>	<p>AIRPORT ROAD RECONSTRUCTION</p>		<p>SHEET NO: RD-05</p>							
	<p>ROADWAY PLANS STA 27+00.00 TO STA 36+00.00</p>		<p>REVISION BLOCK</p> <table border="1"> <tr><td>#</td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> <tr><td></td><td></td></tr> </table>	#						
#										
<p>DESIGNED: TCADY</p>	<p>DATE: 15-Apr-19</p>	<p>DRAFTED: TCADY</p>	<p>SCALE 1" = 60'</p>							
<p>CHECKED: BYOUNG</p>	<p>ENG #: 18046</p>									

PRINT DATE/TIME: 4/15/19 9:29 AM

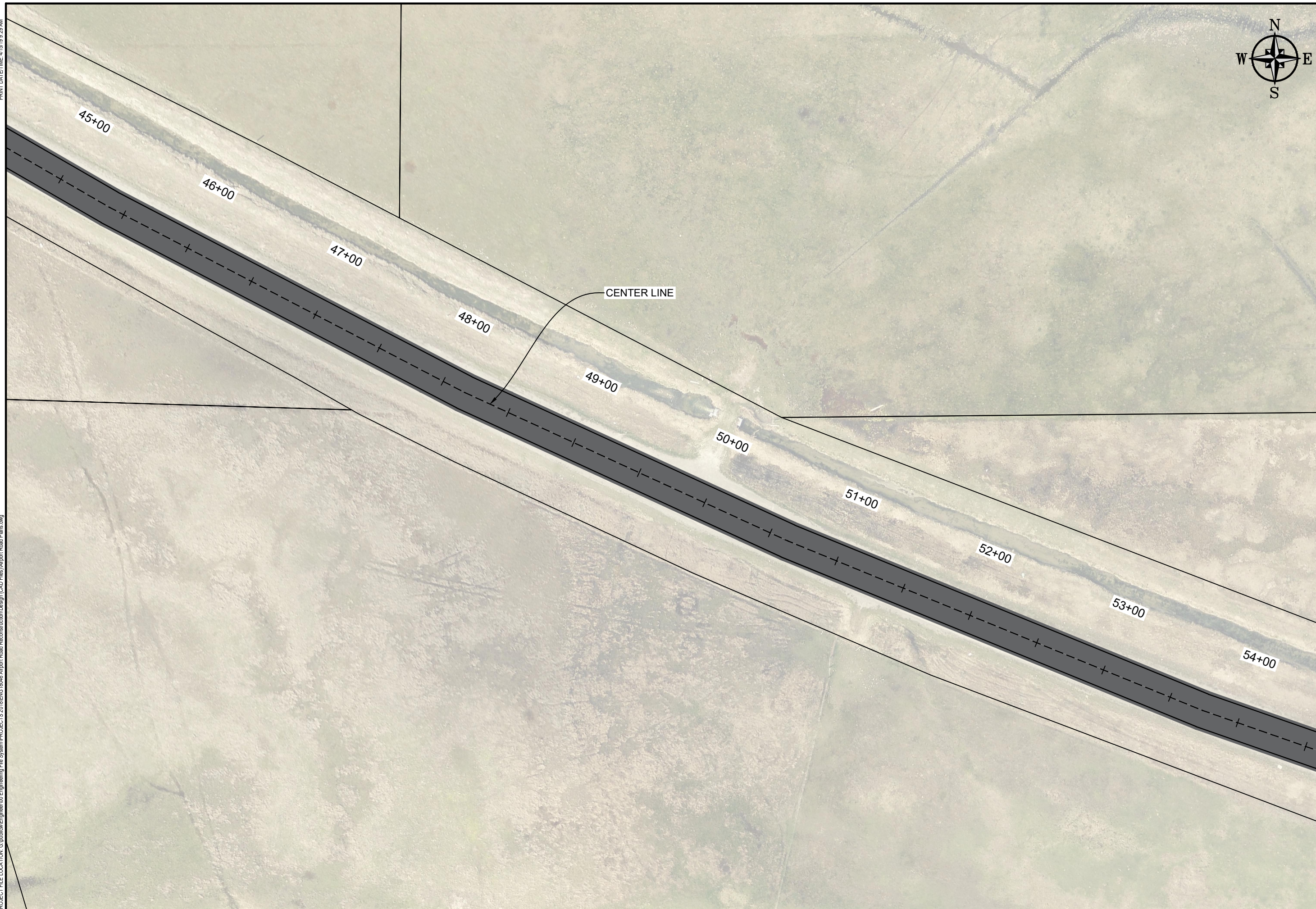
PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS 2018\ENGR 18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg



 LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321 <small>CITY UNITED IN SERVICE PUBLIC WORKS DEPARTMENT</small>		AIRPORT ROAD RECONSTRUCTION ROADWAY PLANS STA 36+00.00 TO STA 45+00.00		DESIGNED: TCADY DRAFTED: TCADY CHECKED: BYOUNG	DATE: 15-Apr-19 ENG #: 18046	REVISION BLOCK # _____ # _____ # _____	SHEET NO: RD-06
		SCALE 1" = 60' 					

PRINT DATE/TIME: 4/15/19 9:29 AM

PROJECT FILE LOCATION: G:\public\Engineer\00 Engineering File System\PROJECTS 2018\ENG 18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg



SHEET NO:
RD-07



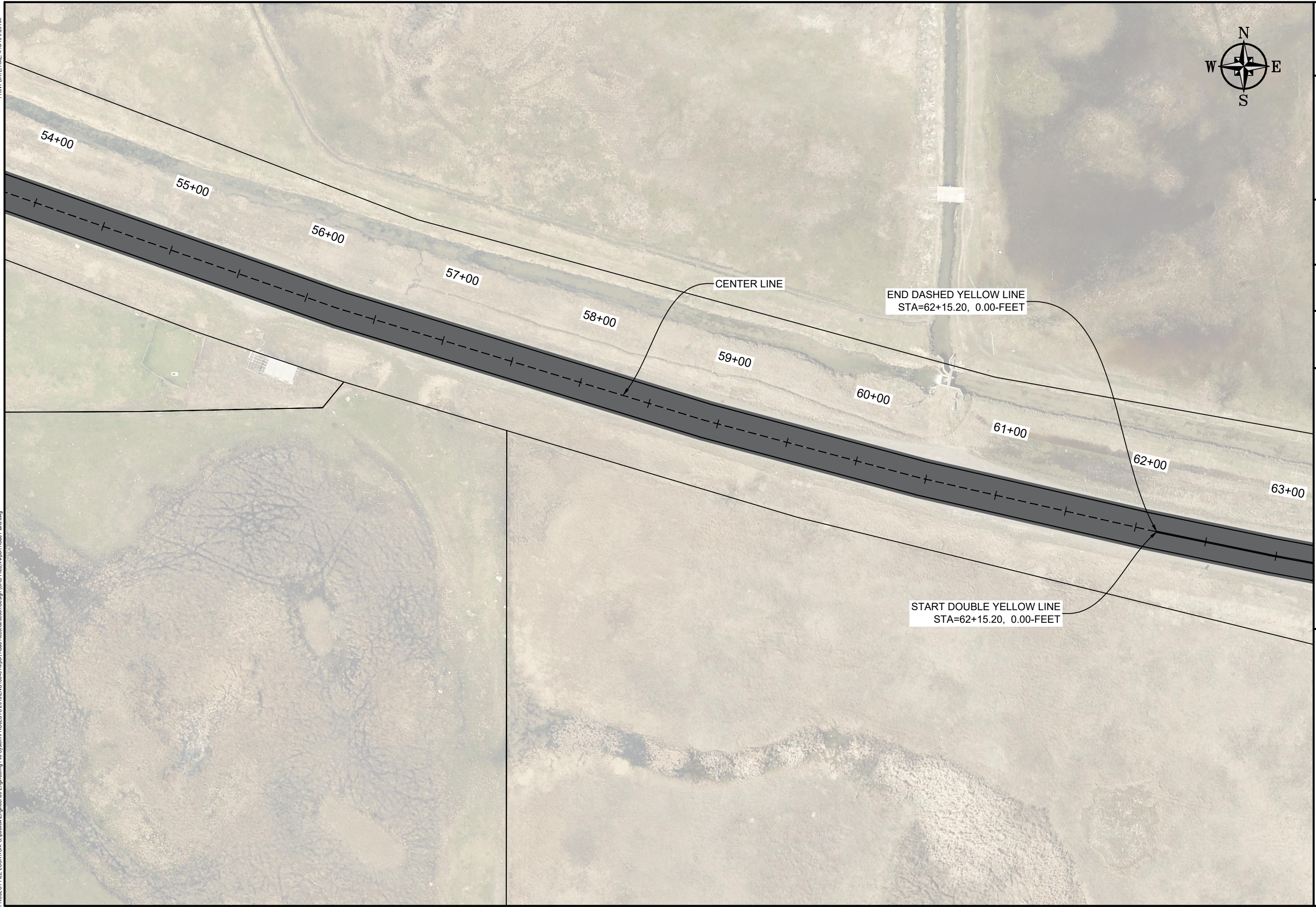
DESIGNED:	DATE:	REVISION BLOCK
TCADY	15-Apr-19	
DRAFTED:	ENG #:	
TCADY	18046	
CHECKED:		
BYOUNG		

AIRPORT ROAD RECONSTRUCTION
ROADWAY PLANS
STA 45+00.00 TO STA 54+00.00

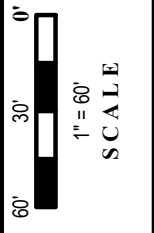
LOGAN CITY ENGINEERING
290 NORTH 100 WEST
LOGAN, UTAH 84321

PRINT DATE/TIME: 4/15/19 9:29 AM

PROJECT FILE LOCATION: G:\public\Engineer\00\Engineering File System\PROJECTS 2018\ENGR 18046 Airport Road Reconstruction\Design (CAD Files)\Airport Road Plans.dwg



SHEET NO:
RD-08

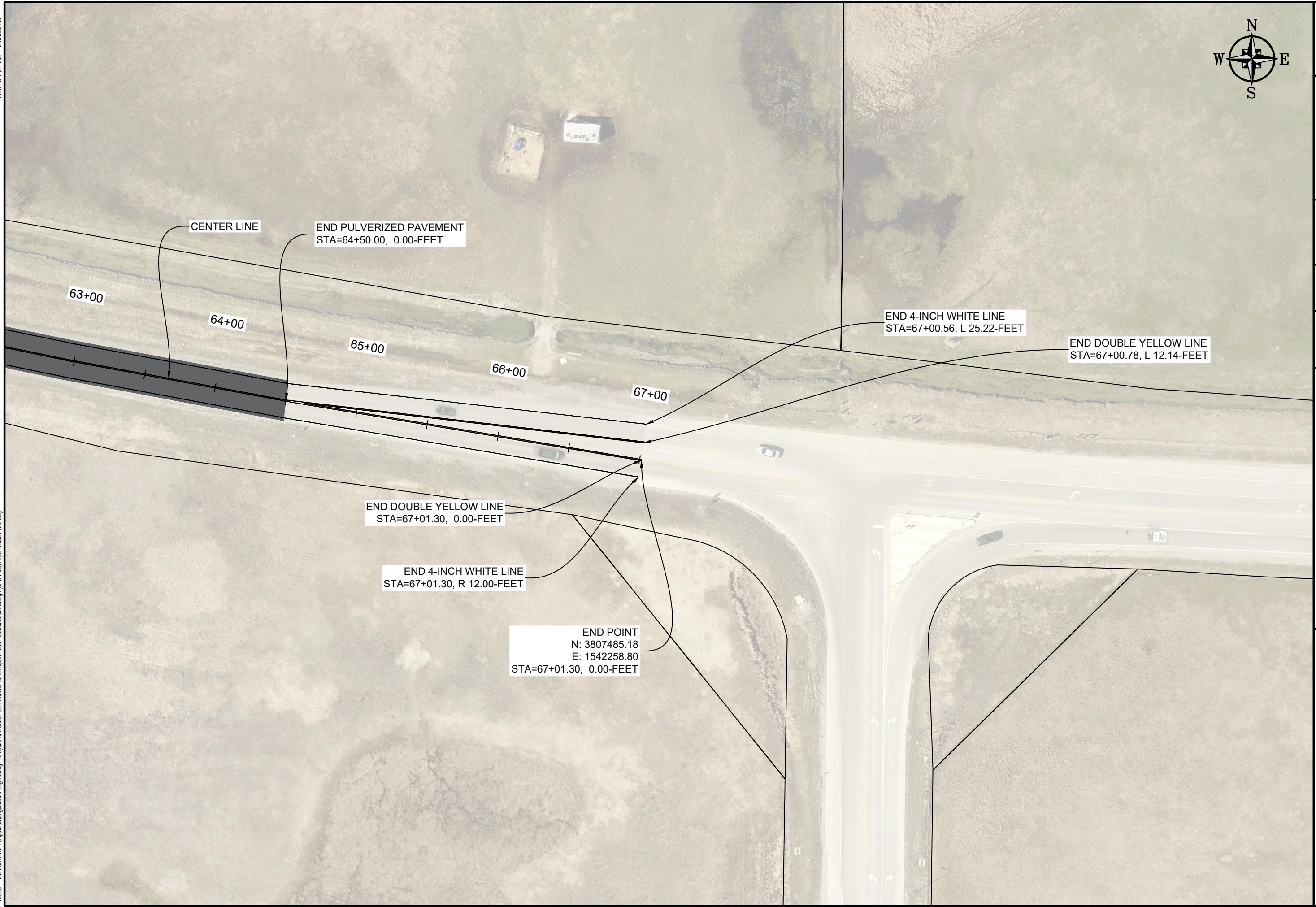


REVISION BLOCK #

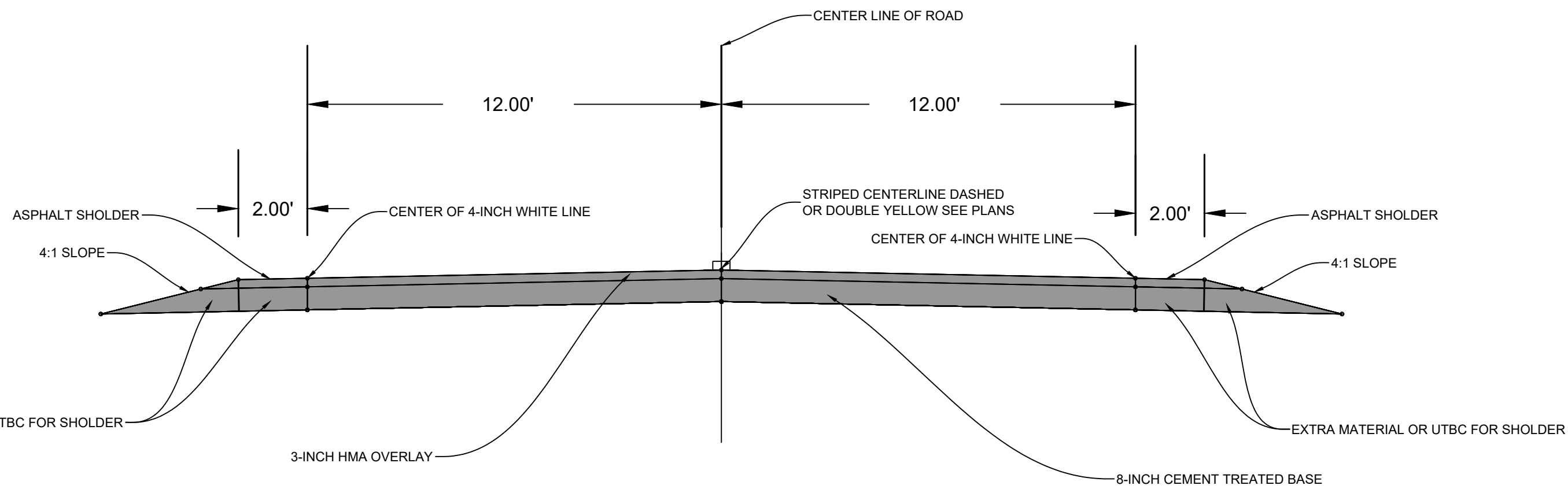
DESIGNED: TCADY	DATE: 15-Apr-19
DRAFTED: TCADY	ENG #: 18046
CHECKED: BYOUNG	

AIRPORT ROAD RECONSTRUCTION
ROADWAY PLANS
STA 54+00.00 TO STA 63+00.00

LOGAN CITY ENGINEERING
290 NORTH 100 WEST
LOGAN, UTAH 84321



 LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321	AIRPORT ROAD RECONSTRUCTION ROADWAY PLANS STA 63+00.00 TO STA 67+00.00		SHEET NO: RD-09
	DESIGNED: TCADY DRAFTED: TCADY CHECKED: BYOUNG	DATE: 15-Apr-19 ENG #: 18046	REVISION BLOCK # _____



A CROSS SECTION
- NTS

SHEET NO: NTS DT-01	
DESIGNED: TCADY	DATE: March 25, 2019
DRAFTED: TCADY	ENG #: 18046
CHECKED: BYOUNG	REVISION BLOCK:
AIRPORT ROAD RECONSTRUCTION	
PROJECT OVER VIEW	
LOGAN CITY ENGINEERING 290 NORTH 100 WEST LOGAN, UTAH 84321	
LOGAN CITY UNITED IN SERVICE PUBLIC WORKS DEPARTMENT	