Appendix A
Wetland Report

Wetland Delineation Report

Proposed 2011-2012 Dry Gulch Irrigation Company Hancock and State Road Lateral Salinity Reduction Projects (Duchesne and Uintah Counties, Utah)

(Located in Sections 12, 13, 14, 23, 24, 26, and 27, Township 2 S, Range 2 W; and, Sections 7, 8, 14, 15, 16, 17, 18, 20, 21, 22, 23, 26, 27, 28, 29 and 30, Township 2 S, Range 1 W)

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TABLE OF CONTENTS

Wetland Delineation Report

Appendix

Introduction

This wetland delineation was authorized by Jim Young and Mark Kettle, with Dry Gulch Irrigation Company, in order to properly define the wetland boundaries within a 76-acre study area (see Project Overview and Sheet Index Exhibit and Wetland Delineation Plan Sheets in the Appendix). The wetland delineation was prepared pursuant to the U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual Technical Report Y-87-1 (1987 Manual) and the Arid West Regional Supplement (2008). The defined project study area is linked to the proposed 2011-2012 Dry Gulch Irrigation Company Hancock and State Road Lateral Salinity Reduction Project, which spans a total linear length of 16.72 miles. The typical width of the new pipeline easements are 30 feet. The defined project study area also includes two proposed settling ponds and the designated staging areas. The proposed new pipeline alignments are located in Sections 12, 13, 14, 23, 24, 26, and 27, Township 2 South, Range 2 West; and, Sections 7, 8, 14, 15, 16, 17, 18, 20, 21, 22, 23, 26, 27, 28, 29 and 30, Township 2 South, Range 1 West, Duchesne and Uintah Counties, Utah.

This investigation was performed to determine the presence or absence of wetland boundaries within the defined study area. The field investigations were conducted on September 27th and 28th, 2011. It should be noted that the field conditions were observed near the end of the growing season, but during an above average water year. The primary investigator was Vincent Barthels, Biologist with J-U-B ENGINEERS, Inc.

This report includes a discussion of jurisdictional wetlands, some of which are currently farmed and man-made or artificial ditches within the proposed project study area. The proposed piping alignments have been designed to minimize encroachment into the identified wetlands and ditch lines as much as possible. The goal of this report is to identify and quantify the wetlands and associated project related impacts.

Proposed Action

The Bureau of Reclamation (BOR) has programmed the use of federal funds, under their Salinity Program, to allow the project proponent (i.e. Dry Gulch Irrigation Company) to replace several existing unlined earthen canals and laterals with a pipeline. The proposed action would abandon approximately 18 linear miles of existing open, unlined earthen laterals and 12 miles of existing irrigation pipelines with approximately 16.72 linear miles of new pipeline. The proposed new piping alignments are illustrated on the attached Project Summary Exhibit. Approximately eighty percent (or approximately 14.57 linear miles) of the abandoned laterals will be vacated in place; meaning, no vegetation clearing or earthwork will occur in the established laterals. Some of the vacated laterals will function as roadway swales for stormwater detention and will also incur supplemental hydrology from tail waters originating from high adjacent elevations that receive irrigation waters. This large scale irrigation infrastructure project would reduce the salinity loading of the Colorado River Basin by a total of 2,359 tons annually. Replacing these open unlined earthen canals with buried HDPE pipe would also reduce the amount of water lost through seepage along these canals, improving the efficiency of the water delivery system in the project service area.

The proposed 2011-2012 Dry Gulch Irrigation Company Hancock and State Road Lateral Salinity Reduction Project contains four primary elements or phases. These individual phases include: three (3) Hancock Lateral piping projects (i.e. Phases 1-3) and the State Road Lateral piping project. The Hancock Phase 1 Piping Project initiates off of a new diversion point along the Class D Canal. The start of this project is located in the NW ¼ of Section 33, Township 2 South, Range 2 West and ends in the SW ¼ of Section 13, Township 2 South, Range 2 West, Uintah Special Base and Meridian. The Hancock Phase 1 piping project will eliminate the need for the existing Hancock lateral that initiates immediately downstream of the diversion structure off of Dry Gulch Creek, which is situated immediately downstream of the confluence of the Class D Canal into Dry Gulch Creek. Due to easement availability, the pipe alignment of this phase will cross Dry Gulch Creek in 1 location, the Martin Lateral in 1 location, and the Hancock Canal in 2 locations. Details of canal crossings are

discussed below. This project installs approximately 4.89 miles of HDPE pipe that ranges in size between 42 and 30-inches in diameter. The Hancock Phase 1 Piping Project will deliver irrigation water to a total 20 turn-outs and should reduce the annual salt allocation by 600 tons per year compared to the existing conditions associated with the open, unlined laterals.

Hancock Phase 2 begins at the end of Phase 1 in Section 13 and ends in the SE ¼ of Section 20, Township 2 South, Range 1 W. It replaces approximately 8.2 miles of the Hancock Canal and Sterling Lateral with 3.7 miles of HDPE pipe ranging from 30" to 8". Phase 2 delivers to 17 turnouts and should reduce the annual salt allocation by 796 tons. No locations along the existing canal will be disturbed by the Phase 2 pipe project.

Hancock Phase 3 splits off of Phase 1 on Pole Line Rd in the northwest corner of Section 35 in order to replace 3.1 miles of the Martin Lateral with a 24" HDPE pipe. It ends in the NW ¼ of Section 32, Township 2 South, Range 1 W. Approximately 2.9 miles of the Martin Lateral will be filled in with the pipe. It is likely that a small drainage swale will be left in its place to accommodate roadside drainage. Locations along the canal containing large trees will be left generally undisturbed. Phase 3 delivers to 3 turnouts and will reduce the annual salt load by 262 tons.

The State Road phase is not physically connected to the Hancock phases. It begins in the NW ¼ of Section 16, Township 2 South, Range 1 W. and ends in the SW ¼ of Section 26 of the same township and range. It will replace 8.75 miles of the State Road Lateral with 4.7 miles of HDPE ranging between 34" and 18". The alignment of the pipe will generally stay south or west of the tree lines on the existing canal, thus leaving the existing canals relatively undisturbed. Due to easement needs, the pipe alignment will cross the northern section of the canal in two locations and then it will cross the canal again just south of HWY 40. Two more canal crossings will be necessary along the eastern-most canal in order to service water users. The State Road Pipe project will deliver to approximately 46 turnouts and will reduce the annual salt load by 701 tons.

The proposed action would also include the construction of a settling pond at the beginning of the Hancock Canal and the construction of a settling basin at the start of the State Road lateral. These facilities would be approximately 200' by 200' and 200' by 80', respectively. Excavated material will be used as fill wherever possible. Embedment will be needed wherever rocky subsurface conditions exist. It is roughly estimated that approximately 25,000 tons of embedment (mostly sand) will need to be imported from sites near the construction. Most of this embedment will be taken from the two new pond sites.

Canal crossings will occur through open excavation through the canal and will result in the removal of all trees and vegetation within 15' on either side of the crossing. The top of the pipe may or may not extend higher than the original flow-line of the canal, but will not extend higher than the bank of the canal, such that any drainage water within the canal will stay in the canal and continue to convey downstream.

The large majority of earthwork will be done using a track-hoe. All surfaces will be repaired to existing pre-construction conditions. All phases are planned to be constructed during the non-irrigation period beginning as early as December 2011 and finished by April 2012. Construction activities may extend until April 2013 if necessary. Irrigation for 2012 will occur via the pipe project where possible and via the existing canal wherever the pipe system has not been completed.

The staging areas shown on the map will be used for the Hancock phases, except for the furthest east staging area, which will be used for the State Road project.

New easements would be required for the proposed pipeline alignments. The majority of these easements would be on private property through open agricultural fields. All new easements would be granted and associated facilities would be constructed in accordance with the Engineering and O&M

Guidelines for Crossings (BOR, 2008). In some locations (e.g. along Pole Line Road) that are apparent on the map, existing city or county ROW may be used.

The dedication of individual water rights will remain unaltered post project implementation.

Best Management Practices (BMPs) will be in place to minimize direct, short-term construction impacts. Planned BMPs herein are intended to restore vegetative structure and minimize erosion. These measures include re-planting barren locations (post-construction) with native vegetation. BMPs are mandatory and will become part of the project design. They will include, but are not limited to the following:

1. Temporary erosion sediment control (TESC) structures will be in effect during construction.
2. Excavation, staging areas and the new pipeline installation will only occur within staked limits of the project action area.
3. All disturbed upland areas will be re-seeded upon project completion with a dry land seed mix.
4. In areas were identified wetlands or ditchline are present, the upper 10-12 inches of the soil profile will be salvaged and re-used as the top course over the new pipeline.

Directions to the Project Action Area:
From Bountiful, Utah travel south on I-15, take the I-80 Eastbound exit toward Cheyenne. Then, travel east up Parley's Canyon on I-80 to the Highway 40 exit located approximately one mile past Park City. Take the Highway 40 exit and then stay on Highway 40 for approximately 150 miles, until you reach the town of Roosevelt (see the vicinity map in the Appendix). After arriving in Roosevelt, utilize the Project Overview and Sheet Index Exhibit in the Appendix to view the project study area or proposed pipeline corridors.

Methods

The wetland delineation was conducted using methodology described in the U.S. Army Corps of Engineers Wetland Delineation Manual (1987 Manual) and the Arid West Regional Supplement (2008). Specific investigations were performed at ten individual soil test pits (STPs), scattered throughout the defined project study area. STPs were established in order to identify the presence/absence of hydrophytic plant communities, wetland hydrology and hydric soils. The soil test pits were marked with wooden lathe and orange flagging. Wetland boundary markers were set in the field using wooden lathe and pink and black striped flagging.

Professional land surveying was performed by J-U-B ENGINEERS, Inc. to capture the established soil test pit markers and wetland boundaries set in the field using a Trimble R8 GNSS RTK (Real Time Kinematics) Global Positioning System (GPS) unit. This system has an accuracy of about +/- 10mm (0.03 feet) + 1ppm RMS Horizontal, and +/- 20mm (0.06 feet) + 1ppm vertical. The GPS points were downloaded into ACAD Civil 3D 2011 to convert established GPS waypoints into the developed Wetland Delineation Plan Sheets, which aided in the determination of wetland impacts within the project study area. Photos were taken to properly document pertinent locations (see appendix - photo inventory).

Sources of information used for this investigation included:

1) Web Soil Survey (USDA/NRCS 2011) (see Appendix - soil survey information);
2) Hancock Cove and Roosevelt, Utah USGS 7.5 minute Quad Maps;
3) National List of Plant Species that Occur in Wetlands (Resource Management Group, Inc. 1994);
4) Plant identification references (see references);
5) National Wetland Inventory (NWI) Maps accessed via http://www.charttiff.com/WetLandMaps/main.htm (Note: NWI mapped features have been added as a layer to the Project Overview and Sheet Index Exhibit and the applicable wetland delineation plan sheets, see Appendix);
6) Munsell Soil Chart (2000 Edition); and,
7) Hydric Soils Information (USDA/NRCS 2011).

Discussion

Topography

The topography of the project study area is fairly flat (0-5% slopes). Most of the land use is planted agricultural fields or flood irrigated open pasture land. The elevation of the project action area falls within the range of 5,000 to 5,300 feet above sea level.

Climate

The project area has an average annual temperature of 46.2 degrees Fahrenheit. The average annual rainfall is 6.99 inches; whereas, the average annual snowfall is 13.8 inches. The growing season typically falls between April 30th and October 13th, 166 days (USDA/NRCS 2011).

General Habitat Descriptions

This project traverses through the town of Roosevelt. *Description of the Ecoregions of the United States* describes the proposed action area as an Intermountain Semidesert and Desert Province (Bailey 1995). The undeveloped land cover is dominated by sagebrush communities. In this ecoregion, streams are not abundant, and when they are present, they are typically ephemeral or intermittent. The habitat in the project action area can be characterized as pre-developed, since most of the project action area does not contain natural, undisturbed habitat. A large percentage of the new pipe alignment exists in agricultural land uses. Fish bearing habitat is not present along the pipeline alignment.

Hydrology

The majority of the wetland hydrology within the project area is derived from irrigation waters that are drawn from the Dry Gulch (Hancock Canal) and Cottonwood (State Road Canal) Creeks. Several open irrigation ditches cross or parallel the proposed piping alignments (see wetland delineation plan sheets in the Appendix). All the irrigation induced waters and subsequent wetlands identified in the project study area are linked directly to these aforementioned creeks.

Based on the connectivity to and from Dry Gulch and Cottonwood Creeks, the irrigation ditches and wetland areas located in the defined project study area are likely to be deemed jurisdictional. The jurisdictional authority resides with the USACE under Section 404.

Soils

Mapped soil information is extremely limited for the project action area. No soil survey is available for Duchesne County. Along the State Road piping alignment (in Uintah County), the soils identified for the project study area include: Pariette loam, 2 to 4 percent slopes (174); Stygee clay loam, 0 to 1 percent slopes (221); Stygee silty clay loam, 0 to 1 percent slopes (223); Turzo-Umbo complex, 0 to 2 percent slopes (243); Umbo clay loam, 0 to 2 percent slopes (251); and Umbo silty clay loam, 0 to 2 percent slopes (252) (NRCS/USDA 2011). Of these soil types, three of the six mapped soil types (243, 251, and 252) are listed as partially hydric and three (174, 221, and 223) are listed with an unknown hydric rating. Mapped soils throughout the project action area are fine textured, ranging from loams to clay loams aridisols. A majority of the mapped soils are well drained, with only two mapped soil types being somewhat poorly drained (251 and 252).

Plant Communities

Plant communities primarily consist of cultivated crops, assorted herbaceous vegetation, such as grasses and annual weeds, and a few scattered shrubs or trees. Table 1 (located on page 7) illustrates the dominant plant species that were encountered within the study area vicinity; individual species' wetland indicator status is provided as well.

Table 1 - Common vegetation encountered within the study area vicinity.

Common Name	Scientific Name	Wetland Indicator Status
Alfalfa	*Medicago spp.*	NI- Suspected FAC
Alkali bulrush	*Scirpus maritimus*	NI- Suspected FACW
Alkali sacaton	*Sporobolus airoides*	FAC
Annual ragweed	*Ambrosia artemisiifolia*	FACU
Baltic rush	*Juncus balticus*	FACW
Barnyard grass	*Enchinochloa crus-galli*	FACW
Big sagebrush	*Artemisia tridentata*	FACU
Bulbous bluegrass	*Poa bulbosa*	FACU
Bull thistle	*Cirsium vulgare*	FAC
Canadian thistle	*Cirsium arvense*	FACU
Cattail	*Typha latifolia*	OBL
Cheatgrass	*Bromus tectorum*	FACU
Climbing nightshade	*Solanum dulcamara*	FAC
Clover	*Trifolium spp.*	FAC
Cocklebur	*Xanthium strumarium*	FAC
Common reed	*Phragmites australis*	FACW
Cottonwood	*Populus spp.*	FAC-FACW
Curly dock	*Rumex crispus*	FACW
Duckweed	*Lemna minor*	OBL
Field bindweed	*Convolvulus arvensis*	NI- Suspected FACU
Field horsetail	*Equisetum arvense*	FAC
Flix-weed	*Descurainia sophia*	FACU
Foxtail barley	*Hordeum jubatum*	FAC
Goosefoot	*Chenopodium berlandieri*	FACU
Goosegrass	*Eleusine indica*	FACU
Greasewood	*Sarcobatus vermiculatus*	FACU
Gumweed	*Grindelia squarrosa*	FACU
Hardstem bulrush	*Scirpus acutus*	OBL
Horseweed	*Conyza Canadensis*	FACU
Intermediate wheatgrass	*Thinopyrum intermedium*	NI- Suspected FACU
Kentucky bluegrass	*Poa pratensis*	FAC
Kochia	*Kochia scoparia*	FACU
Lambsquarter	*Chenopodium album*	FACU
Marsh elder	*Cyclachaena xanthifolia*	FAC
Mediterranean barley	*Hordeum geniculatum*	NI- Suspected FAC
Needle spike rush	*Eleocharis acicularis*	OBL
Plaintain	*Plantago major*	FAC
Prickly lettuce	*Lactuca serriola*	FACU
Quack grass	*Agropyron repens*	FAC
Rabbitbrush	*Chrysothamnus spp.*	FACU
Rabbit-foot	*Polypogon monspeliensis*	FACW
Redtop	*Agrostis alba*	FACW
Red swampfire	*Salicornia rubra*	OBL
Reed canary grass	*Phalaris arundinacea*	OBL
Russian olive	*Elaeagnus angustifolia*	FAC
Russian thistle	*Salsola pestifer*	FACU
Safflower	*Carthamus tinctorius*	NI- Suspected FACU
Salt cedar	*Tamarix ramosissima*	FACW
Salt grass	*Distichlis spicata*	FAC
Sandbar willow	*Salix exigua*	OBL

Table 1 - Common vegetation encountered within the study area vicinity (continued).

Common Name	Scientific Name	Wetland Indicator Status
Sedge	*Carex spp.*	FACW
Shepherd's purse	*Capsella bursa-pastoris*	FACU
Slender wheatgrass	*Agropyron trachycaulum*	FACU
Smartweed	*Polgonum spp.*	FACW
Smooth brome	*Bromus inermis*	FACU
Softstem bulrush	*Scirpus validus*	OBL
Spotted knapweed	*Centaurea maculosa*	FACU
Squirreltail	*Elymus elymoides*	UPL
Sunflower	*Helianthus annuus*	FACU
Teasel	*Dipsacus fullonum*	NI- Suspected FAC
Tumble mustard	*Sisymbrium altissimum*	FACU
Water pepper	*Polygonum hydropiperoides*	FACW
Wheat	*Triticum aestivum*	NI- Suspected FACU
Witchgrass	*Panicum capillare*	FACU
Wood's Rose	*Rosa woodsii*	FACU

Wetland/Irrigation Ditch Classifications

The National Wetlands Inventory (NWI) Map classifies a mosaic of **PEMA** (palustrine, emergent, temporary) and **PEMB** (palustrine, emergent, saturated) systems scattered throughout the project vicinity (see NWI map in the Appendix). Based on the hydrology (i.e. seasonally irrigation induced) coupled with the vegetation communities observed, **PEMA/PEMB** wetland characterizations are consistent with the onsite present day conditions.

Findings

Field data forms reflect the conditions as assessed in the field and can be found in the Appendix of this report. The following subsections summarize the findings at the individual soil test pits (STPs), how the wetland boundary was determined, and discusses the classification and functionality of the wetlands.

Field Investigations:

(STP # 1):

This data point is located near the beginning (northwestern end) of the State Road Canal, approximately 30 feet landward of the left bank of Cottonwood Creek and along the proposed overflow pipeline alignment, stemming from the proposed settling basin (see photo # 3, in the Appendix). None of the three wetland parameters were fulfilled at STP # 1. Vegetative assemblages were characterized into a facultative upland community. Wetland hydrology and hydric soils were lacking. The STP was completely dry to a depth of 24 inches and contained a uniform sandy soil texture that lacked redoximorphic features or any hydric indicators. Consequently, this STP received an upland designation. Except for approximately 2,284 linear feet the existing State Road Canal segment (i.e. below the Ordinary High Water Mark (OHWM)), the proposed settling pond and overflow piping alignment are situated in designated upland settings (see Wetland Delineation Plan Sheet # 21). Noteworthy, the typical average width of the existing State Road Canal that is proposed to be filled is 18 feet.

(STP # 2):

This upland data point is located landward of the right OHWM of the State Road Canal (see photo # 7). All three of the wetland parameters were not fulfilled at STP # 2. Only the vegetation parameter was fulfilled; vegetative assemblages were characterized into a facultative to facultative-upland community. Wetland hydrology and hydric soils were lacking. The STP was completely dry to a depth

of 24 inches and contained a uniform soil texture (i.e. silty clay loam) that lacked redoximorphic features or other hydric indicators. Consequently, this STP received an upland designation.

(STP # 3):
This wetland data point is located along the State Road Canal near the south-eastern project limits, in a flood irrigated wasteway or salt flat (see photo # 8). All three of the wetland parameters were fulfilled at STP # 3. Hydrophytic vegetation structure consisted of salt grass, reed canary grass, red swampfire, Baltic rush, salt cedar, and Russian olives. The wetland hydrology was evidenced by the presence of saturation in the upper 12 inches of the STP. Hydric soil was indicated by a hydrogen sulfide smell in the upper 12 inches of the soil profile.

(STP # 4):
This wetland data point (see photo # 10) is located near the southwestern limits of the project area along Pole Line Road (or 2000 South) and is paired with STP #5. All three of the wetland parameters were fulfilled at STP # 4. Hydrophytic vegetation structure is dominated by Baltic rush, salt grass, and foxtail barley. The wetland hydrology was evidenced by the presence of saturation in the upper 12 inches of the STP. Hydric soil was indicated by the presence of a gleyed sandy matrix between 2 and 19 inches within the soil profile. The gleyed matrix indicates that the soil is saturated for a significant duration during the growing season. STP # 4 is a data point that represents a flood irrigated wet meadow, which is actively grazed by livestock.

(STP # 5):
This upland data point is paired with STP #4 to define the extent of the flood irrigated wet meadow, and is located approximately 30 feet landward of the right bank of the Martin Lateral (see photo # 11). None of the three wetland parameters were fulfilled at STP # 5. Vegetative assemblages were characterized into a facultative upland community. Wetland hydrology and hydric soils were lacking. The STP was completely dry to a depth of 22 inches and contained a soil profile that lacked redoximorphic features or any hydric indicators. Consequently, this STP received an upland designation.

(STP # 6):
This upland data point is located north of 2000 South and east of 5000 East (see photo # 13). None of the three wetland parameters were fulfilled at STP # 6. Vegetative assemblages were characterized into a facultative upland community. Wetland hydrology and hydric soils were lacking. The STP was completely dry to a depth of 24 inches and contained a soil profile that lacked hydric indicators. Consequently, this STP received an upland designation. STP # 6 is paired with STP # 7.

(STP # 7):
This wetland data point is paired with upland STP #6 to define the limits of the "sloped" wetland tail-out extents, situated below the bass pond (see photos # 13 through # 16). All three of the wetland parameters were fulfilled at STP # 7. Hydrophytic vegetation structure was dominated by cattails, salt grass, Baltic rush, and foxtail barley. The wetland hydrology was evidenced by the presence of saturation in the upper 12 inches of the STP. Hydric soil was indicated by a hydrogen sulfide smell in the upper profile as well as the presence of a gleyed sandy matrix observed from 3-18 inches in the STP. This wetland area is managed under a cooperative agreement with the local NRCS field office; recently, the NRCS has planted some trees in planting tubes within and adjacent to the identified sloped wetland.

(STP # 8):
This wetland data point is located north of South Cove Road and between 3000 West and Summerall Lane; this STP defines an unnamed wash or riverine wetland (see photos # 18 and # 19). All three of the wetland parameters were fulfilled at STP #8. Hydrophytic vegetation structure was dominated by cattails, reed canary grass, common reed, and salt cedars. The wetland hydrology was evidenced by the presence of saturation in the upper 12 inches of the STP. Hydric soils were indicated by the

presence of common redox concentrations observed in the upper profile. This unnamed wash or gulch receives tail waters or return waters that originate from the Hancock Lateral. Wetland Delineation Plan Sheet 20 illustrates the extents of this feature in relation to the proposed perpendicular piping crossing.

(STP # 9):
This upland data point is paired with wetland STP #8, to define the wetland extents associated with the unnamed wash/gulch or riverine wetland. All three of the wetland parameters were lacking at STP #9, which was dug along the steep cut slope of the wash or gulch. Vegetative assemblages were characterized into a facultative upland community. Wetland hydrology and hydric soils were lacking at this STP. The STP was completely dry to a depth of 24 inches and the soil profile lacked hydric indicators. Therefore, this STP received an upland designation.

(STP # 10):
This wetland data point is located north of South Cove Road and east of 3000 West within a flood irrigated wet meadow (see photo # 21). All three of the wetland parameters were fulfilled at STP #10. Hydrophytic vegetation was dominated by salt grass, foxtail barley, Baltic rush, and Russian olives. The wetland hydrology was evidenced by the presence of saturation in the upper 12 inches of the soil profile. Hydric soils were indicated by the presence of a hydrogen sulfide smell in the upper soil profile. The hydrology at this STP is artificial; stemming from flood irrigation. This area is grazed by livestock. The limits of the wetland area are confined on the southern end by South Cove Road and the existing footprint of a corral on the northeastern end.

How the wetland and/or irrigation ditch boundaries were chosen:
The wetland boundary was determined primarily by the distinct vegetation and topography shifts. Vegetation shifts were linked between the aforementioned hydrophytic species and upland and/or transitional species. Hydric soil indicators and wetland hydrology further substantiated the delineated boundaries. Irrigation ditches were delineated based on the OHWM, in accordance with 33 CFR 328.3.

Wetland identification, classification and functionality:
The wetland features located with the defined study area and identified on the wetland delineation maps are classified as emergent, irrigation induced wetlands linked to waters originating from either Dry Gulch or Cottonwood Creek (see wetland delineation plan sheets).

Based on Cowardin's (1979) wetland classification system, this complex of wetland features are field verified to be PEMA, which is consistent with the NWI Map designation.

The wetlands identified in this report share several important functions and values that include: the ability to protect and improve water quality; flood storage; ground water recharge; and, provide seasonal wildlife habitat. These wetlands generally act as very gently sloped catch basins by intercepting flood irrigated (gravity fed) waters from adjacent higher elevations. These wetlands filter the water by degrading or breaking down pollutants.

Summary of impacts to the jurisdictional waterways identified within the project action area
With the proposed irrigation piping improvements some wetland and irrigation ditch impacts cannot be avoided. Minimization measures have been incorporated into the anticipated piping alignments. Table 2 summarizes the anticipated wetland and irrigation ditch impacts.

Approximately 87% of the identified wetland or irrigation ditch encroachments are considered to be temporary impacts, because post pipe installation, the project action area will be restored to pre-construction conditions. Conversely, approximately 13% of the total critical areas identified (*note: all of which are correlated to the 2,284 linear feet (or 0.94 acres) of the State Road Canal - see wetland delineation plan sheet # 21*) are deemed to have "permanent impacts," because the existing canal will be completely filled and reverted to an upland setting.

Table 2: Summary of project related aquatic resource impacts linked to the established piping alignments.

Wetland Delineation Plan Sheet #	Piping Alignment	Feature Impacted (wetland, or open irrigation ditch)	Permanent or Temporary Impact	Quantity (area [acreage] of wetland or linear feet of irrigation ditch) of anticipated critical area to be impacted
1-3	Hancock Phase 1	Flood Irrigated Wet Meadow	Temporary	0.98 acres (or 1,423 linear feet)
4	Hancock Phases 1 & 3	Irrigation Ditch - Martin Lateral (Typical width = 5')	Temporary	82 linear feet (or 0.01 acres)
5-12	Hancock Phase 3	Irrigation Ditch - Martin Lateral (Typical width = 4.5')	Temporary	15,775 linear feet (or 1.63 acres)
13-14	Hancock Phase 1	Sloped Wetland	Temporary	0.18 acres (or 261 linear feet)
15	Hancock Phase 1	Irrigation Ditch - Hancock Lateral (Typical width = 18')	Temporary	79 linear feet (or 0.03 acres)
17-18	Hancock Phases 1 & 2	Flood Irrigated Wet Meadow	Temporary	1.54 acres (or 2,236 linear feet)
20	Hancock Phase 2	Riverine Wetland	Temporary	0.11 acres (or 160 linear feet)
21	State Road	Irrigation Ditch - State Road Lateral (Typical width = 18')	Permanent	2,284 linear feet (or 0.94 acres)
24-25	State Road	Salt Flat, Flood Irrigated (Wet Meadow) Wasteway	Temporary	1.83 acres (or 2,657 linear feet)

Table 3 offers a cumulative format in terms of presenting the anticipated project impacts per the critical area or feature present; it also outlines the nature of the anticipated impacts.

Table 3: Summary of anticipated project related aquatic resource impacts per their critical area classification.

Features Impacted (wetland or irrigation ditch channel)	Permanent or Temporary Impact	Quantity (linear feet of stream channel or area [acreage] of wetland or pond area) of anticipated critical area to be impacted
Irrigation Ditch Channels	Temporary	15,936 linear feet (or 1.67 acres)
Irrigation Ditch Channel - State Road Canal	Permanent	2,284 linear feet* (or 0.94 acres)*
Wetland Areas	Temporary	4.64 acres (or 6,737 linear feet)

Note: (*) = The typical width of the State Road Canal is 18 feet, which equates to an anticipated fill area of 0.94 acres.

Permitting Recommendations

Consistent with the quantities depicted in Tables 2 & 3, the piping alignments are anticipated to permanently impact 0.94 acres (or 2,284 linear feet) of the existing State Road Canal. A Nationwide Permit (NWP #46) should be applied for through completing a Joint Application. The temporary wetland and irrigation ditch impacts should be offset by implementing the best management practices outlined on page 5 of this report. Due to the scope of this project, further consultation with the USACE is warranted for the temporary wetland/irrigation ditch impacts as well.

Conclusion

Within the 76-acre defined project study area, portions of irrigation induced wetlands and established irrigation ditch-lines have been identified. Of the 4.64 acres of total wetlands identified, 0.11 are considered to be riverine wetlands; 0.18 acres are classified as sloped wetlands; and, 4.35 acres are characterized as flood irrigated wet meadow wetlands. A total of 18,220 linear feet of existing irrigation ditch-lines exist in the defined project study area; 2,284 linear feet of existing irrigation ditch lines are anticipated to be permanently impacted by this piping project. The enclosed wetland delineation plan sheets (see Appendix) illustrate the delineated features located within the defined project study area. Based on the nature and scope of this project, future consultation with the USACE is warranted. It should be noted, however, that final authority rests with the appropriate regulatory agencies.

Respectfully submitted by:

11-10-11

Vincent J. Barthels, Biologist
J-U-B ENGINEERS, Inc.

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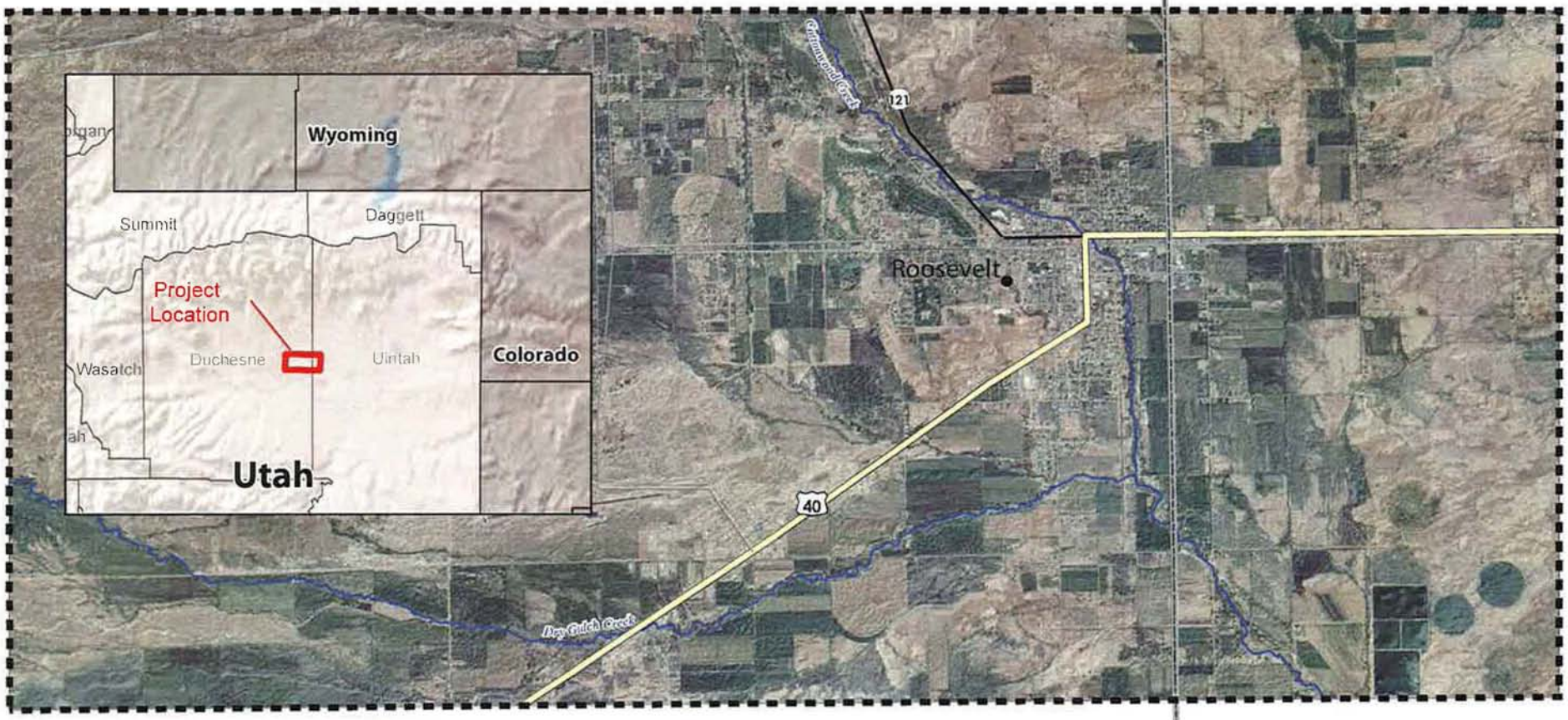
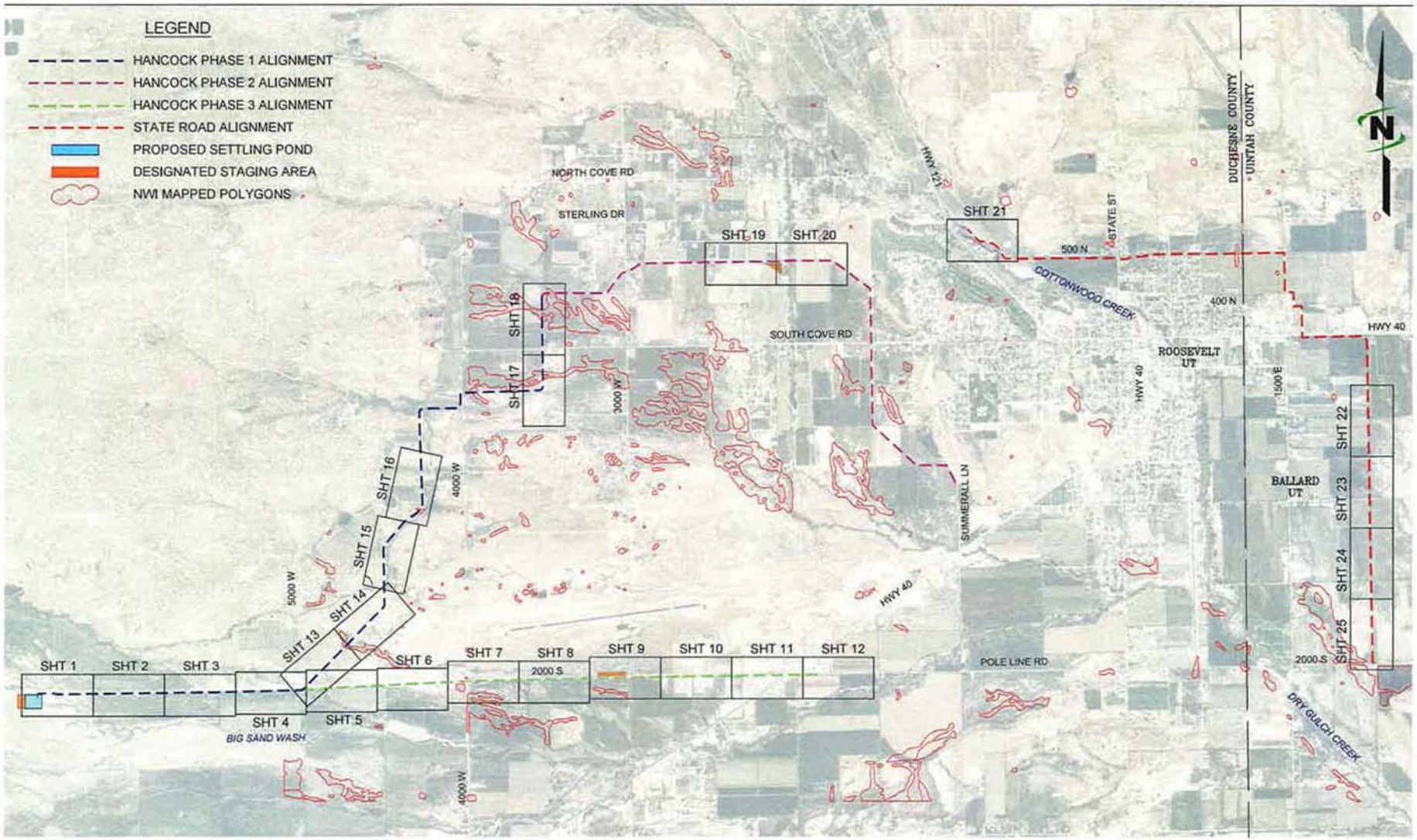
APPENDIX

Environmental Assessment
Vicinity Map





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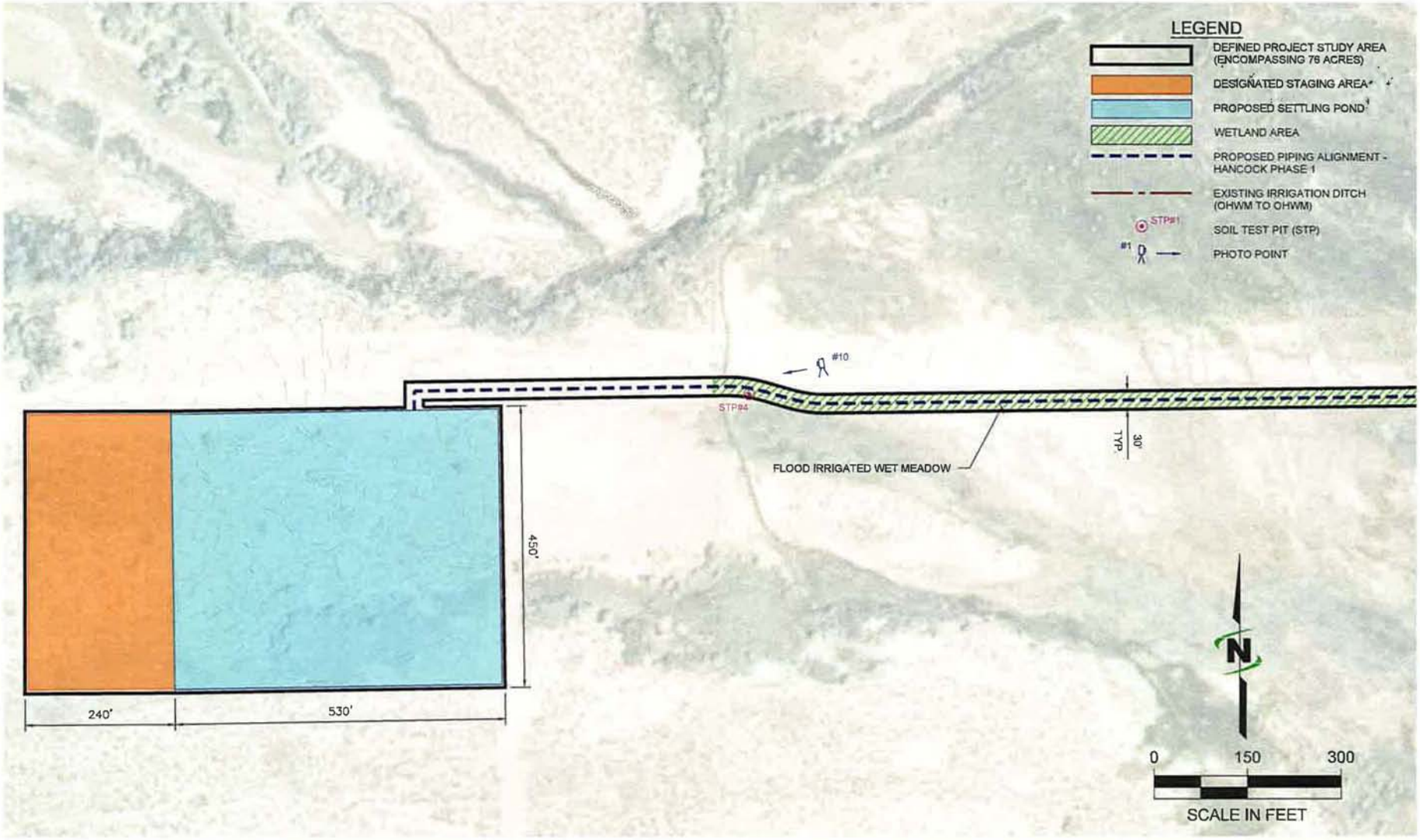
HANCOCK - STATE ROAD
PROJECT OVERVIEW AND SHEET INDEX EXHIBIT



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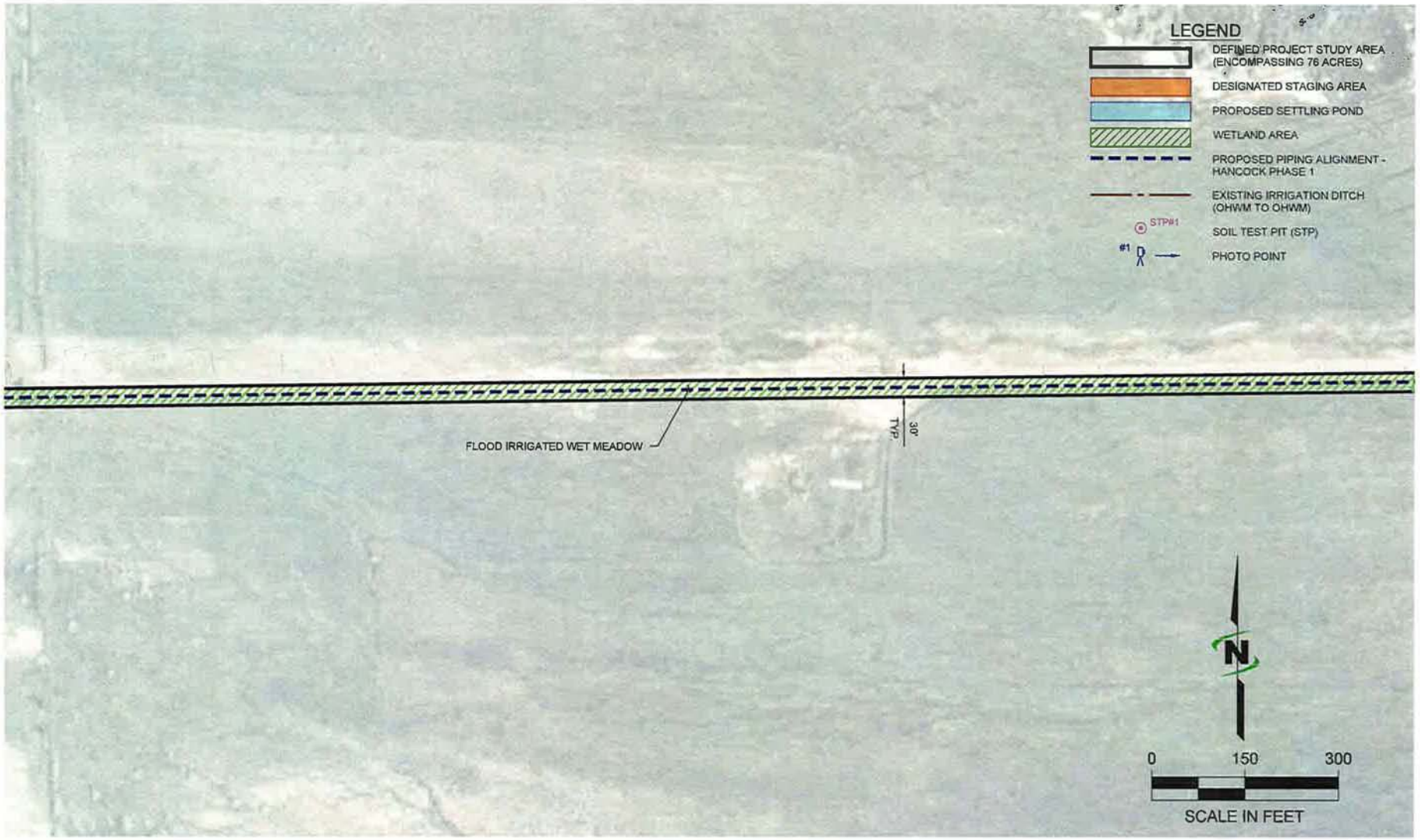
1 of 25



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2 of 25

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3 of 25

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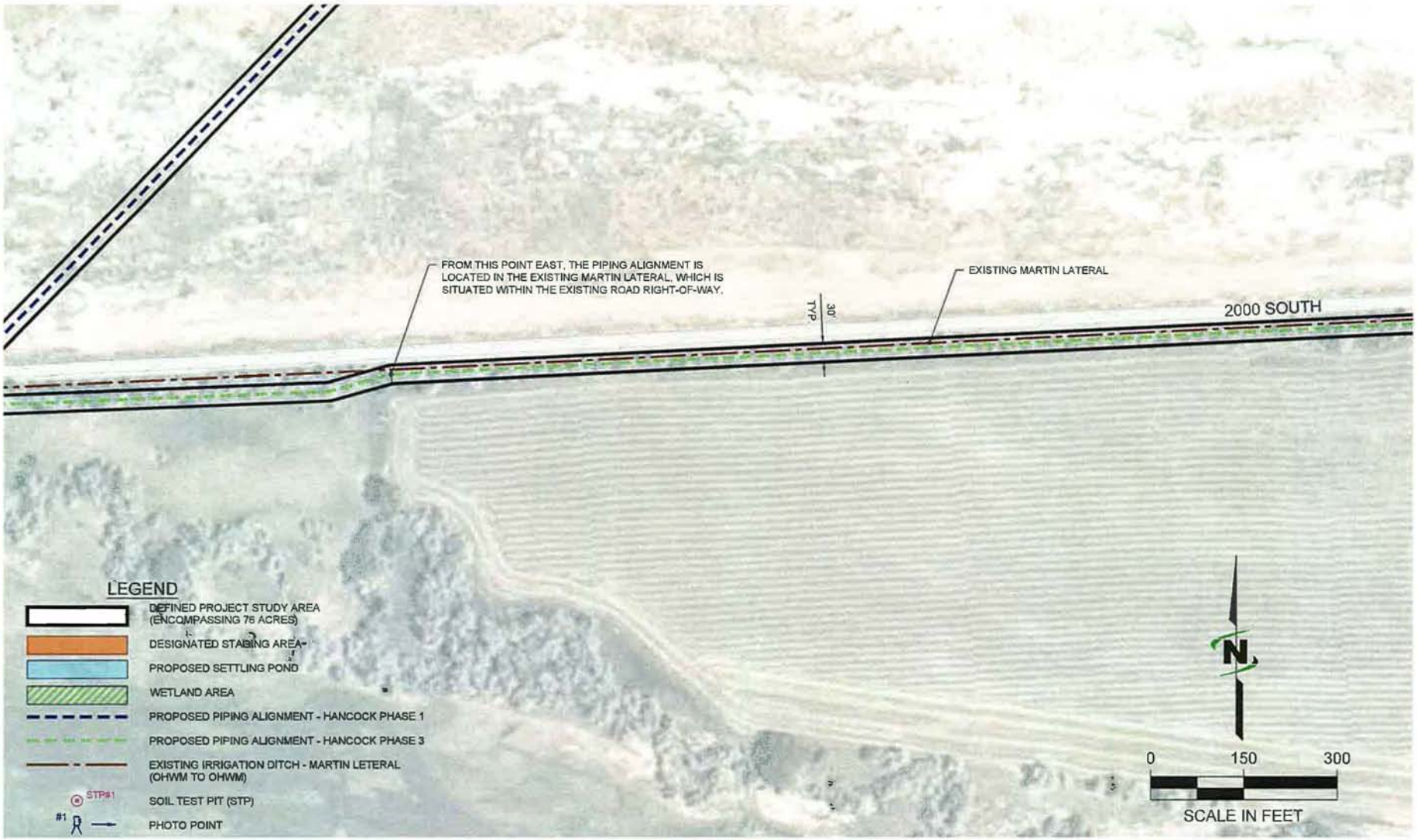
4 of 25



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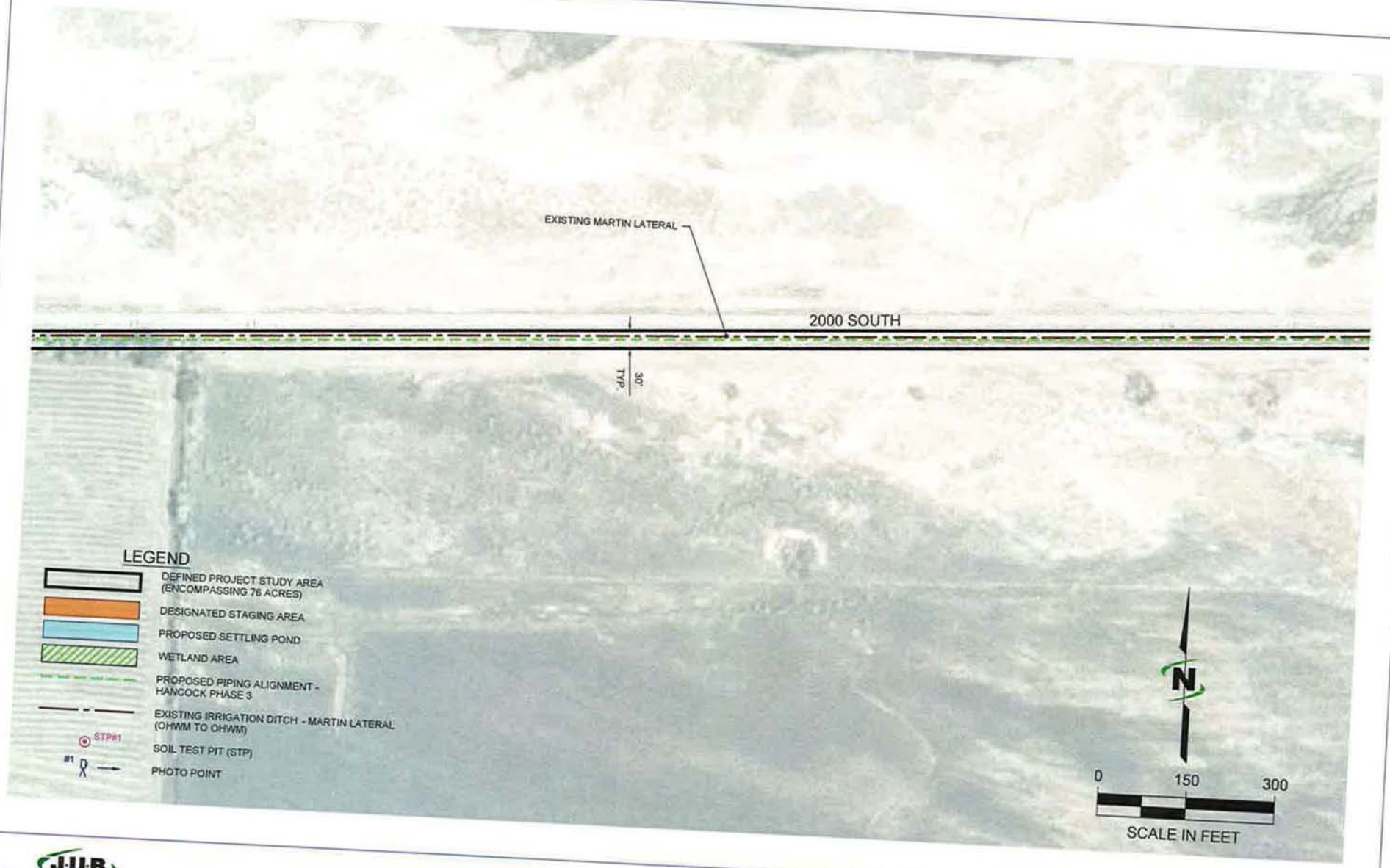
5 of 25



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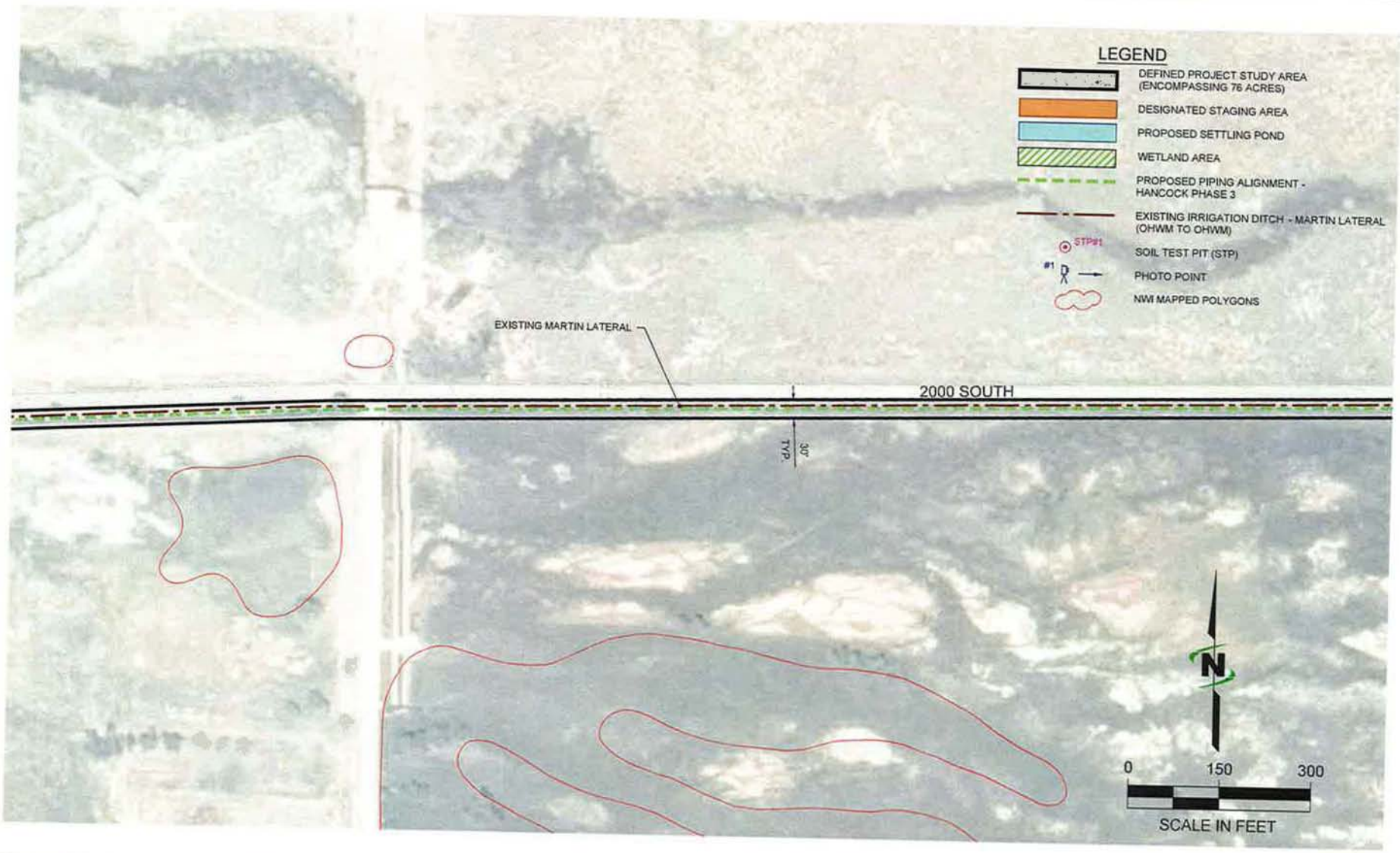
6 of 25



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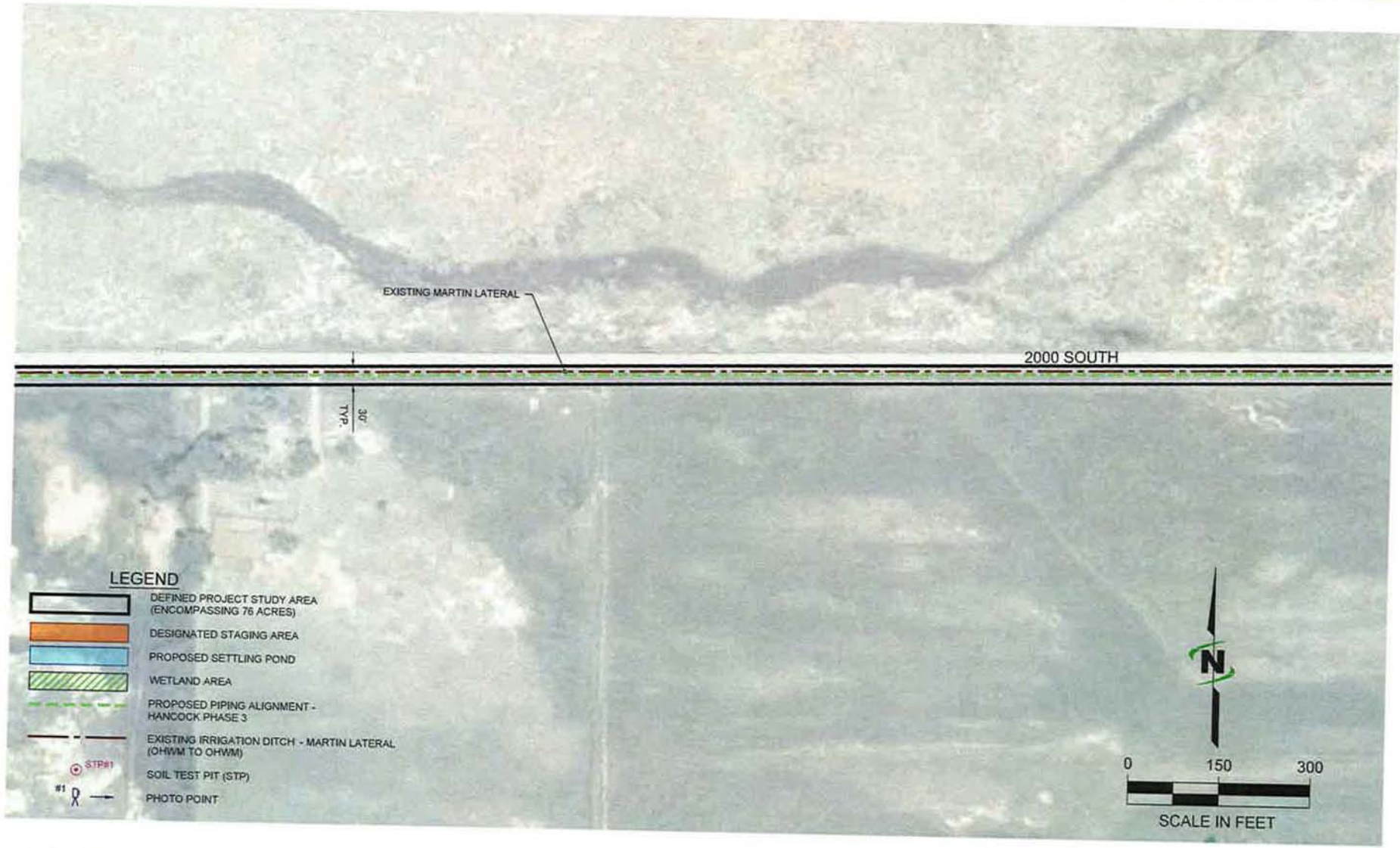
7 of 25



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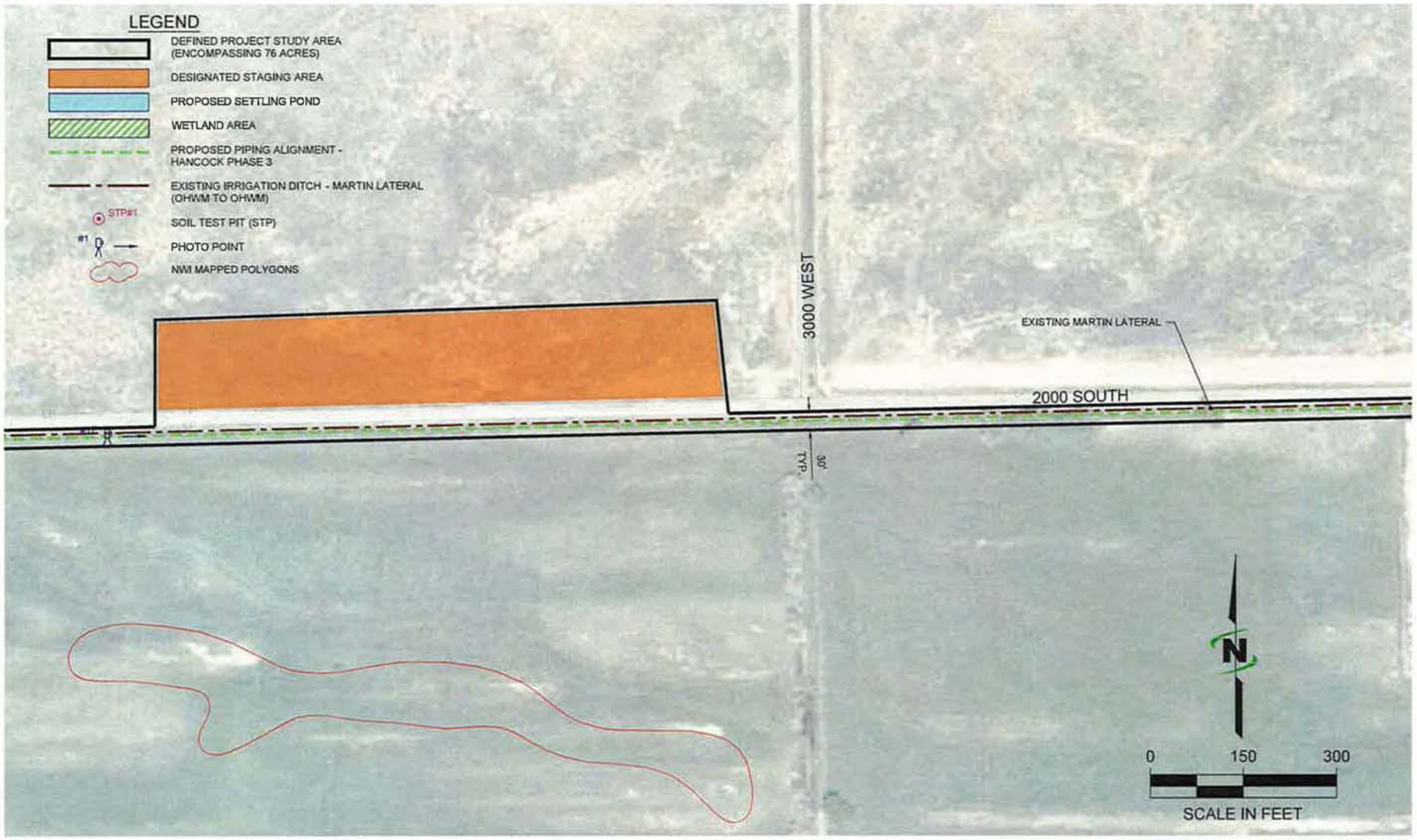

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9 of 25

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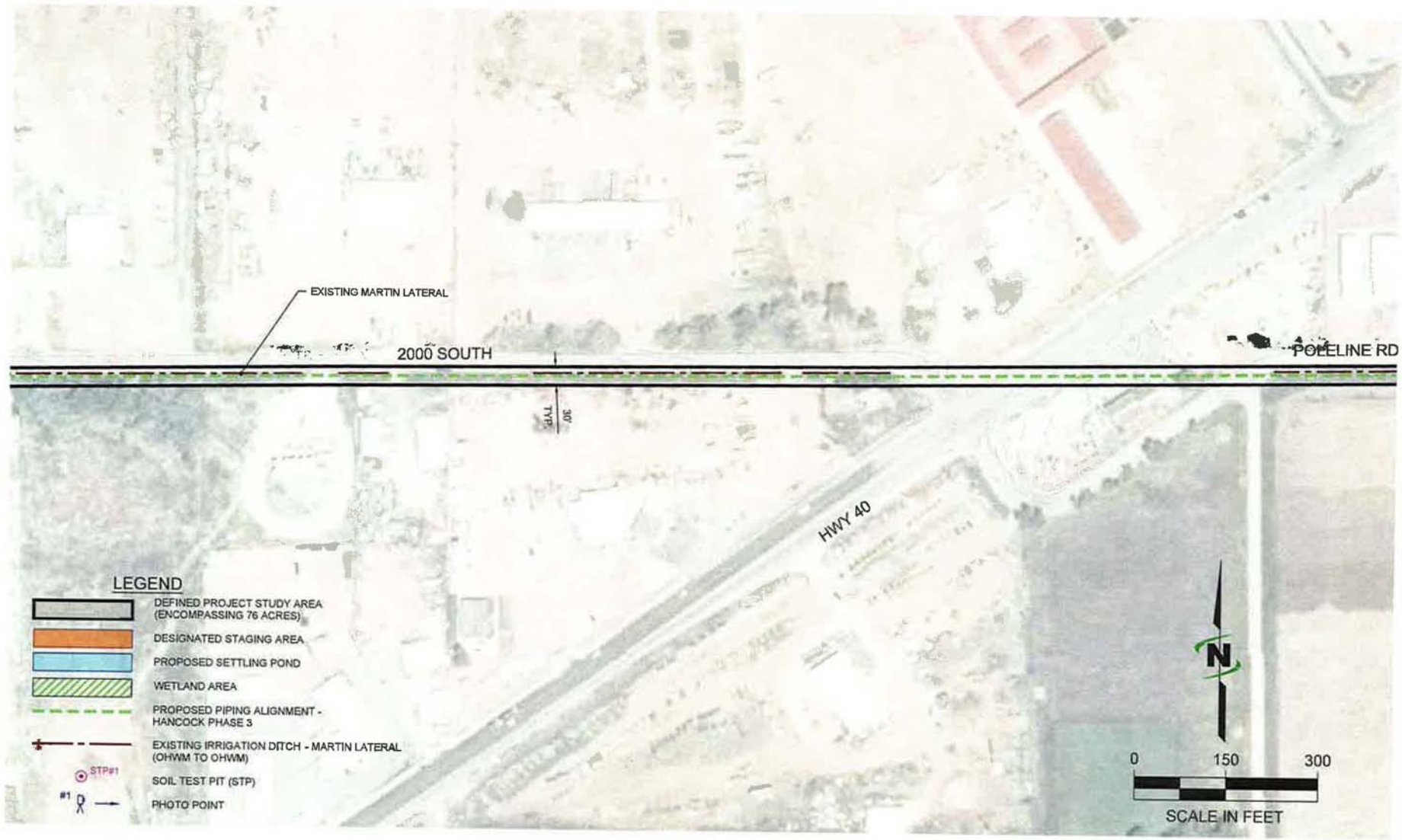

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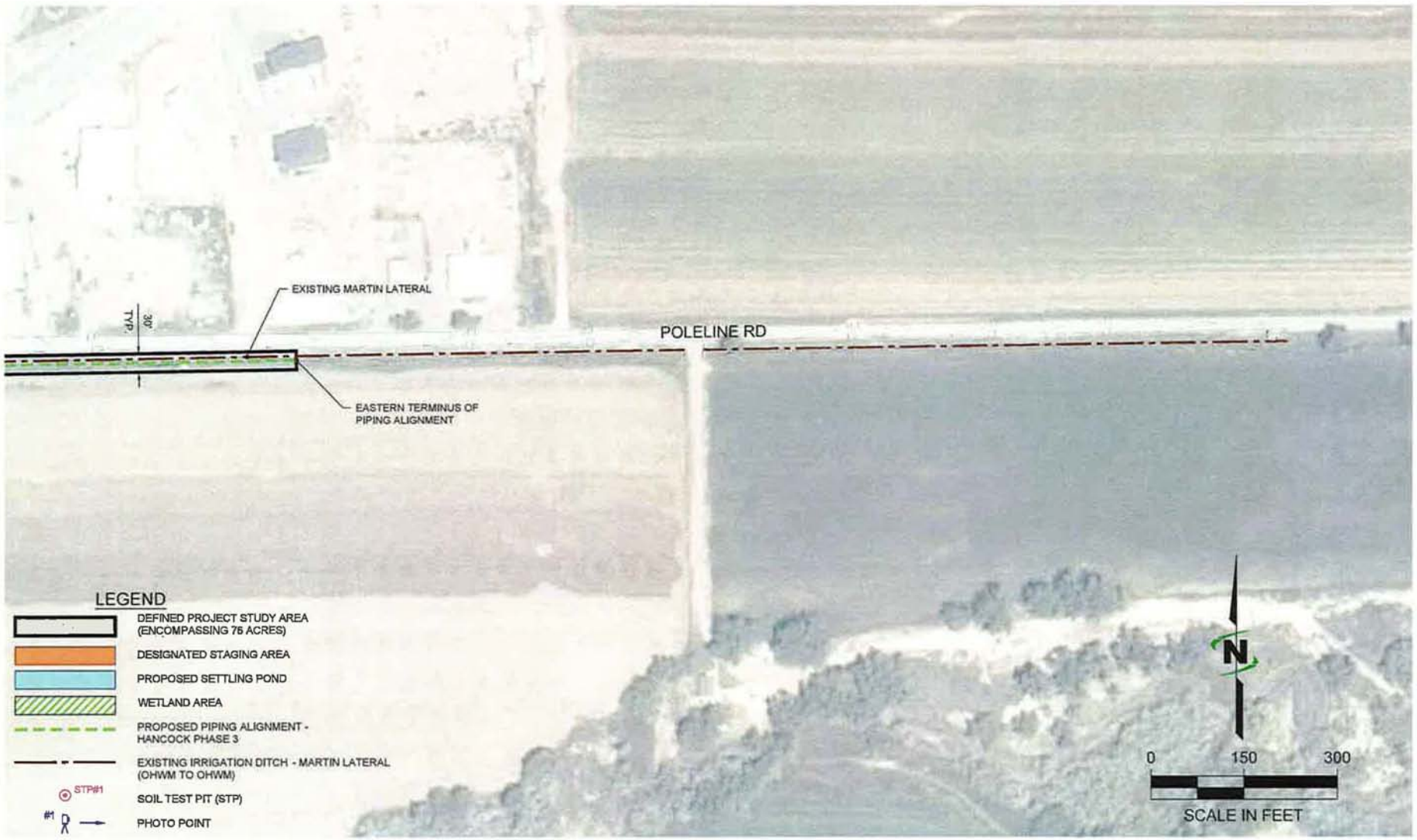

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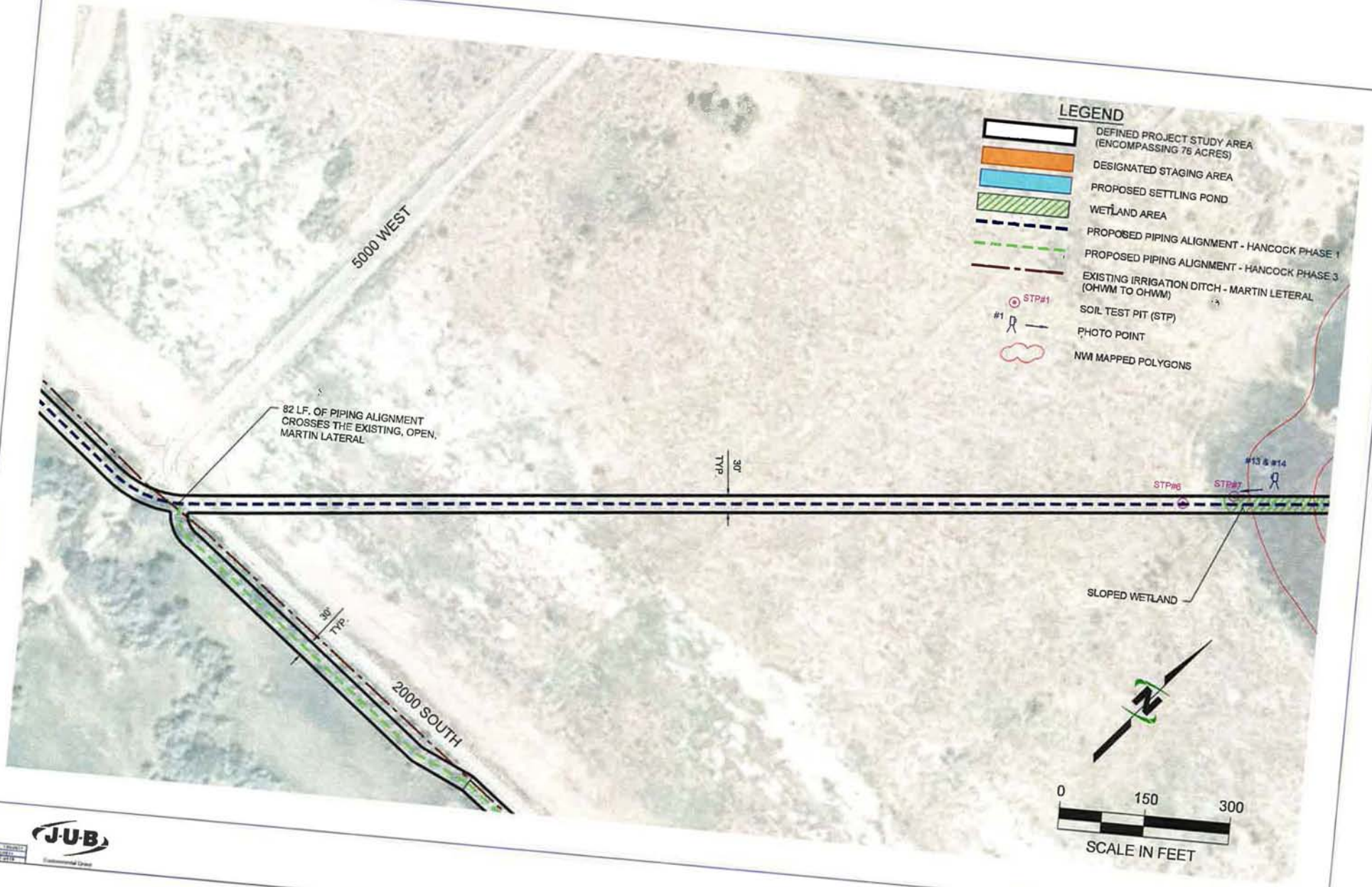

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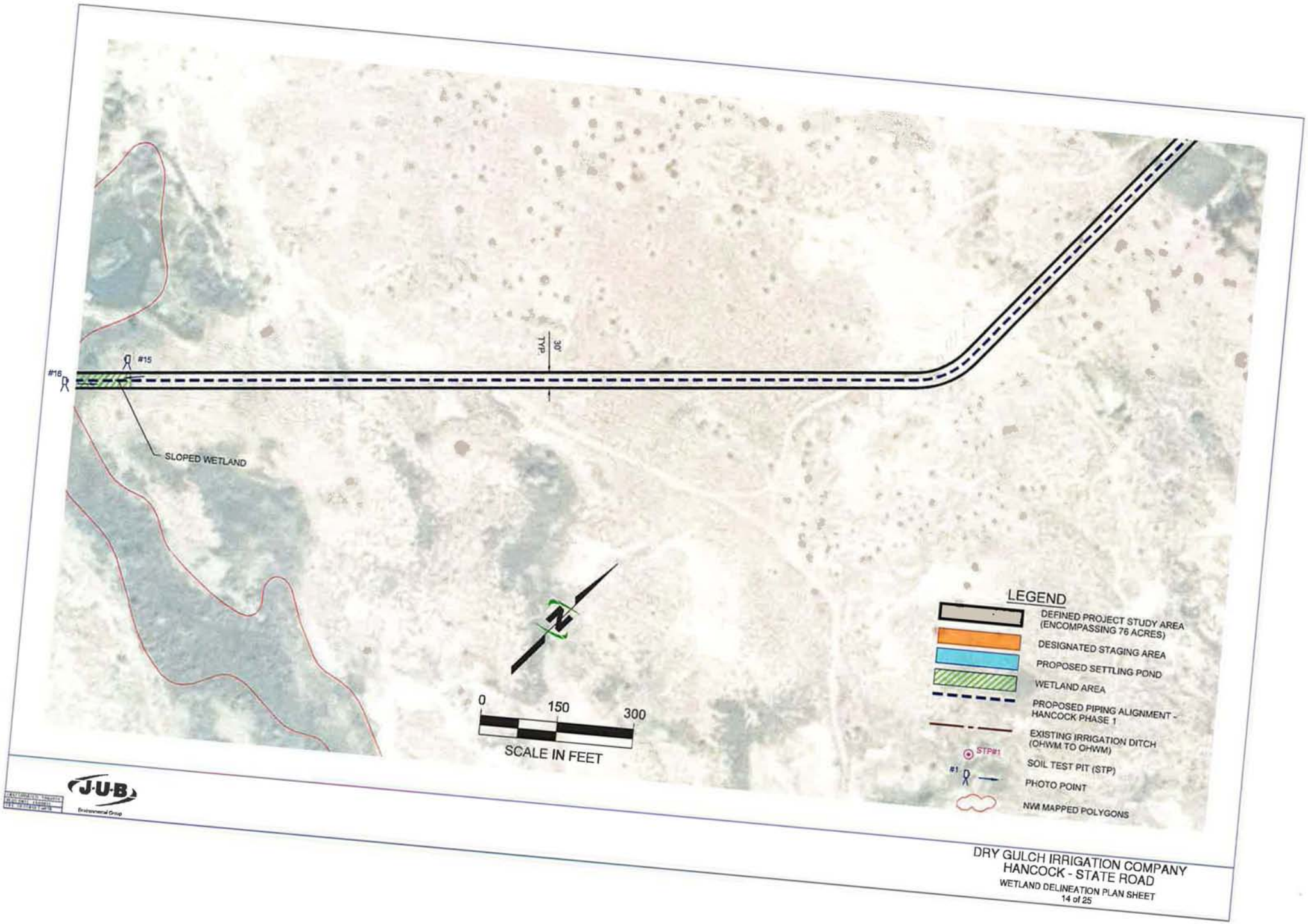

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14 of 25

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15 of 25

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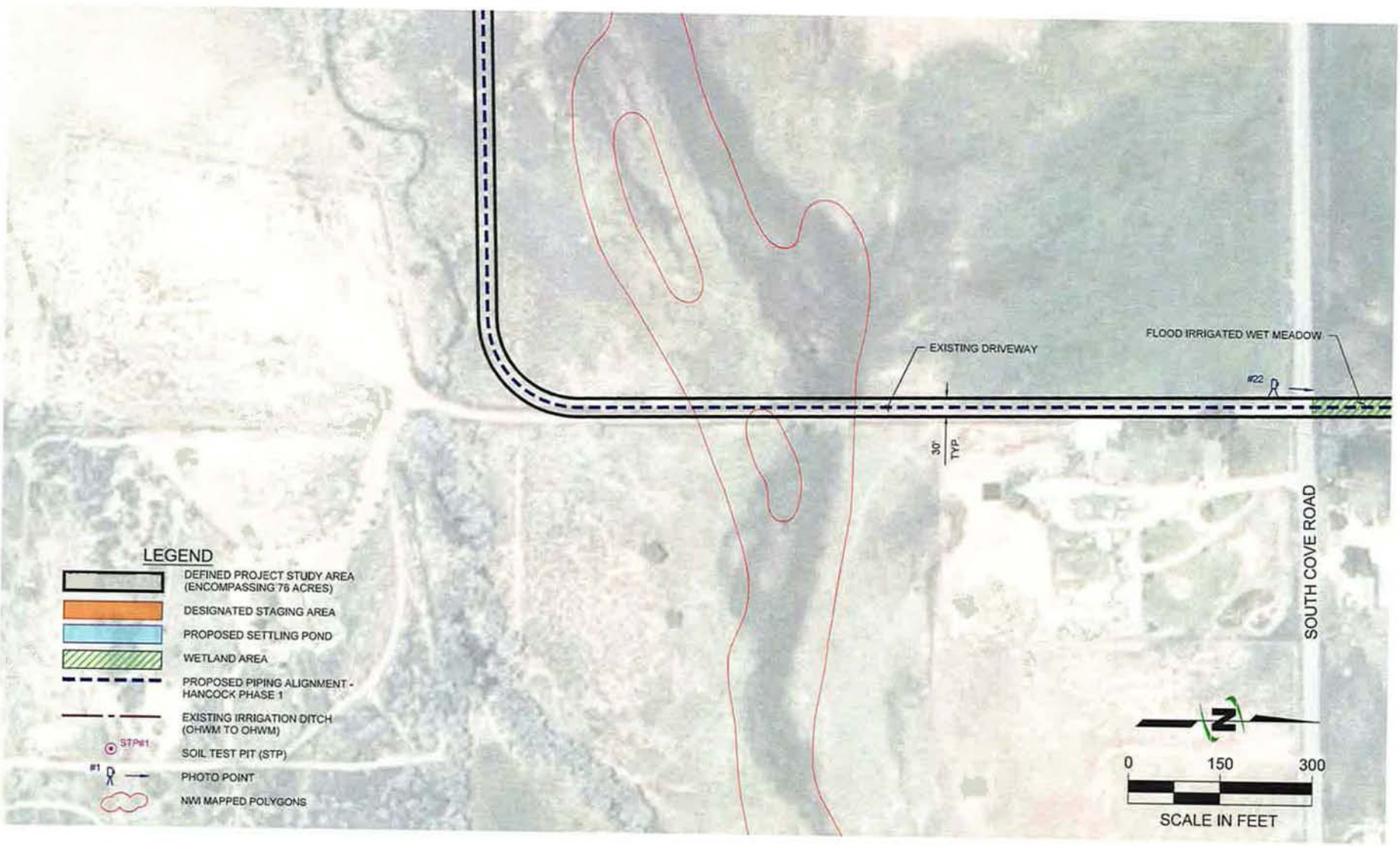
16 of 25



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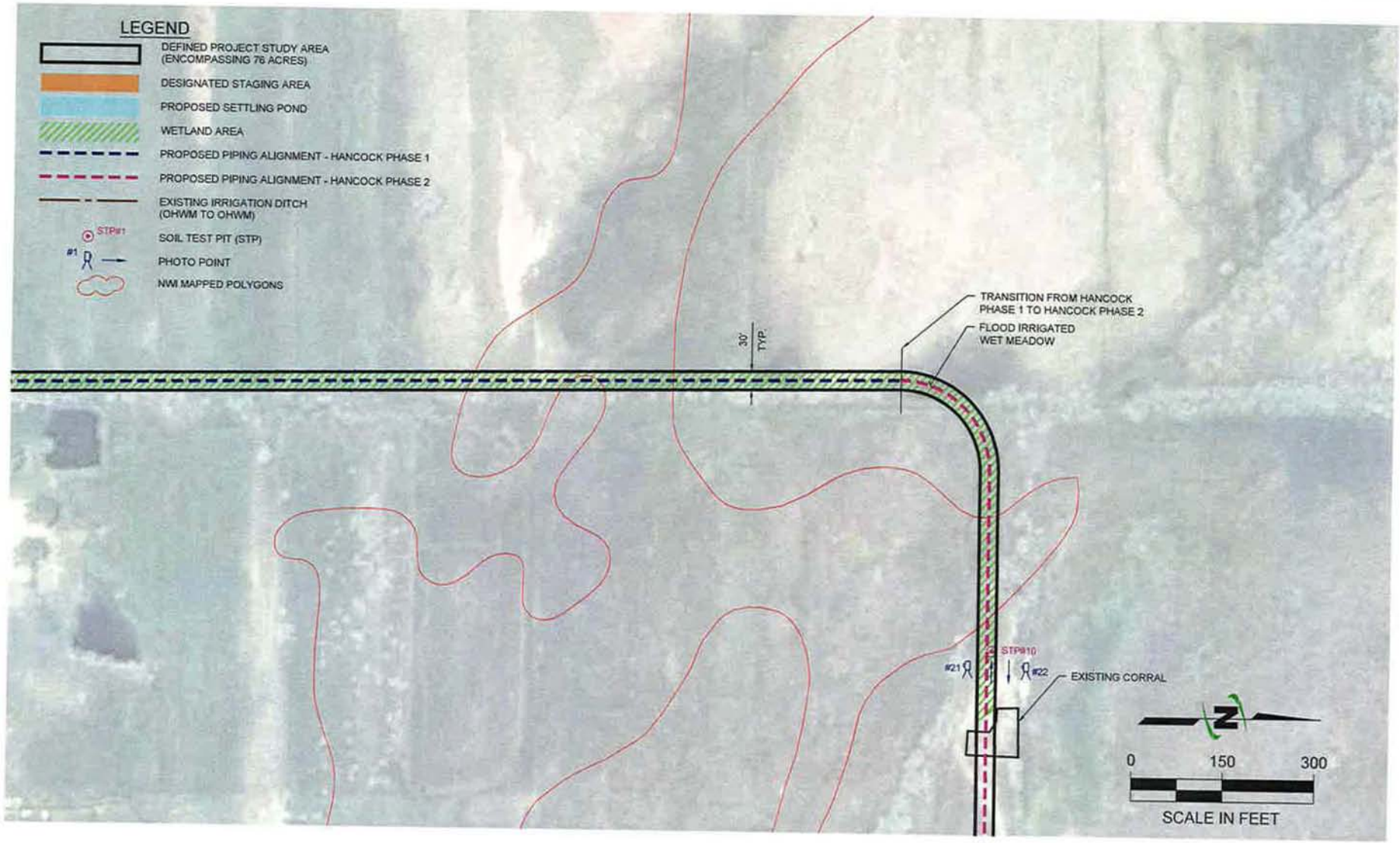

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18 of 25

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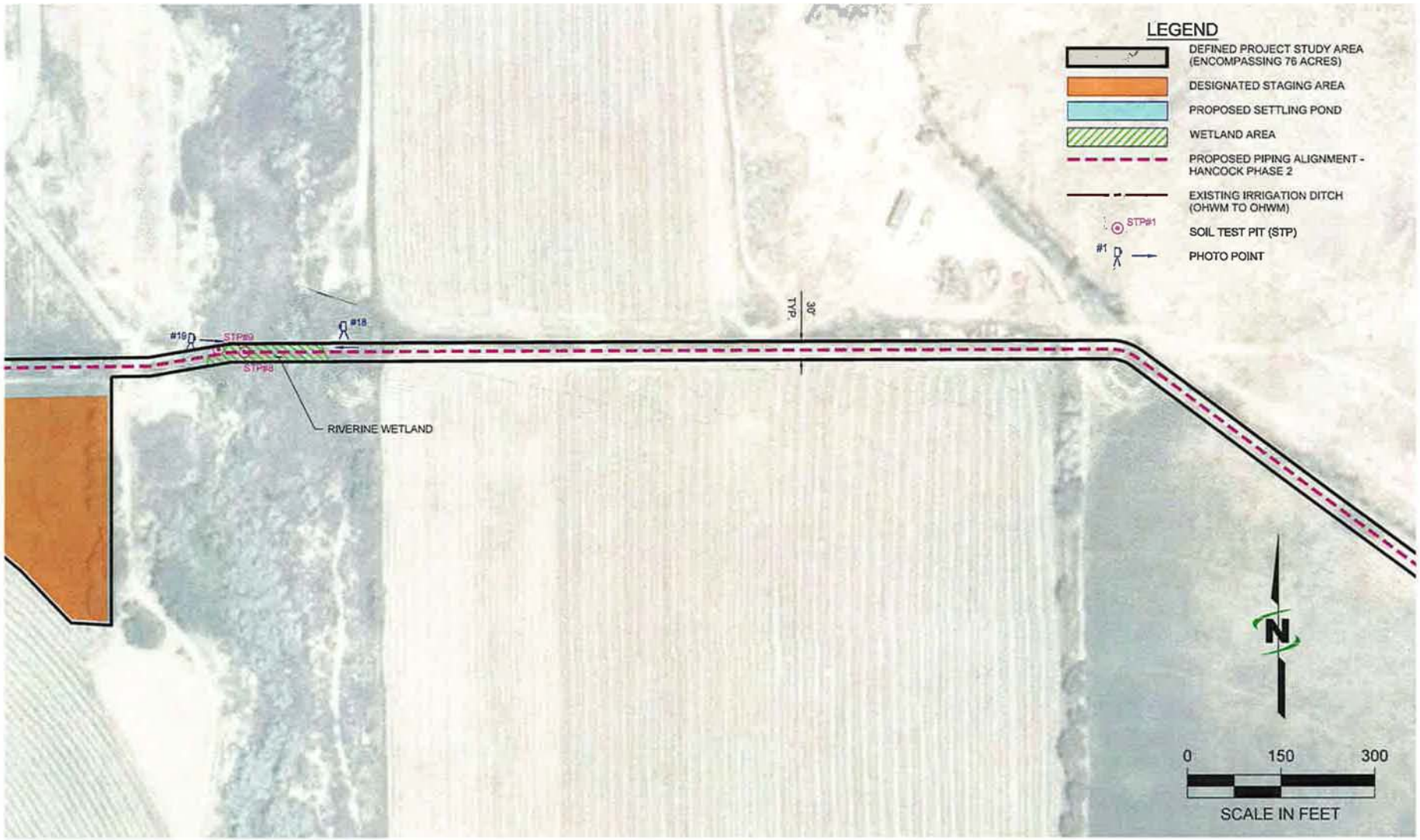
19 of 25



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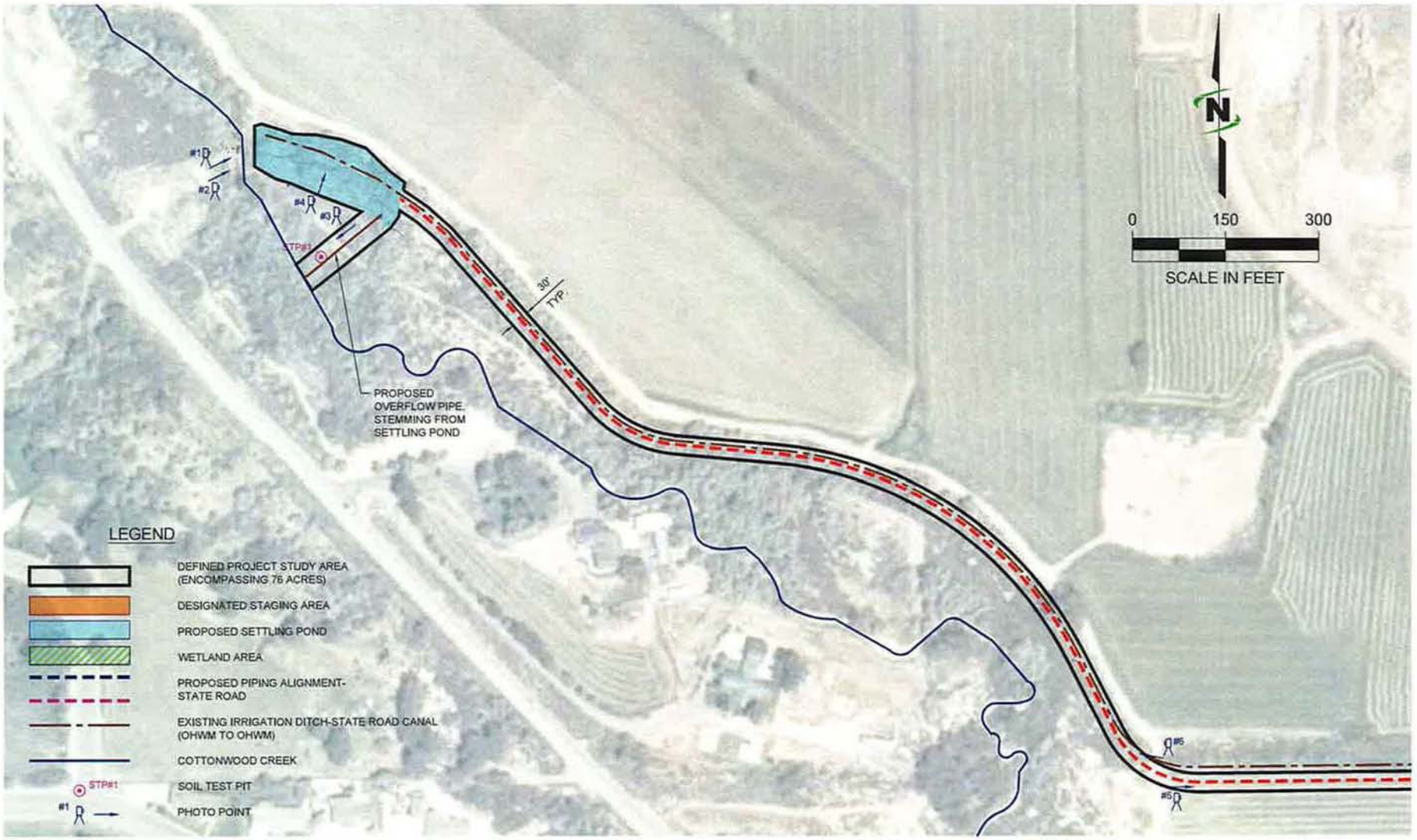
20 of 25



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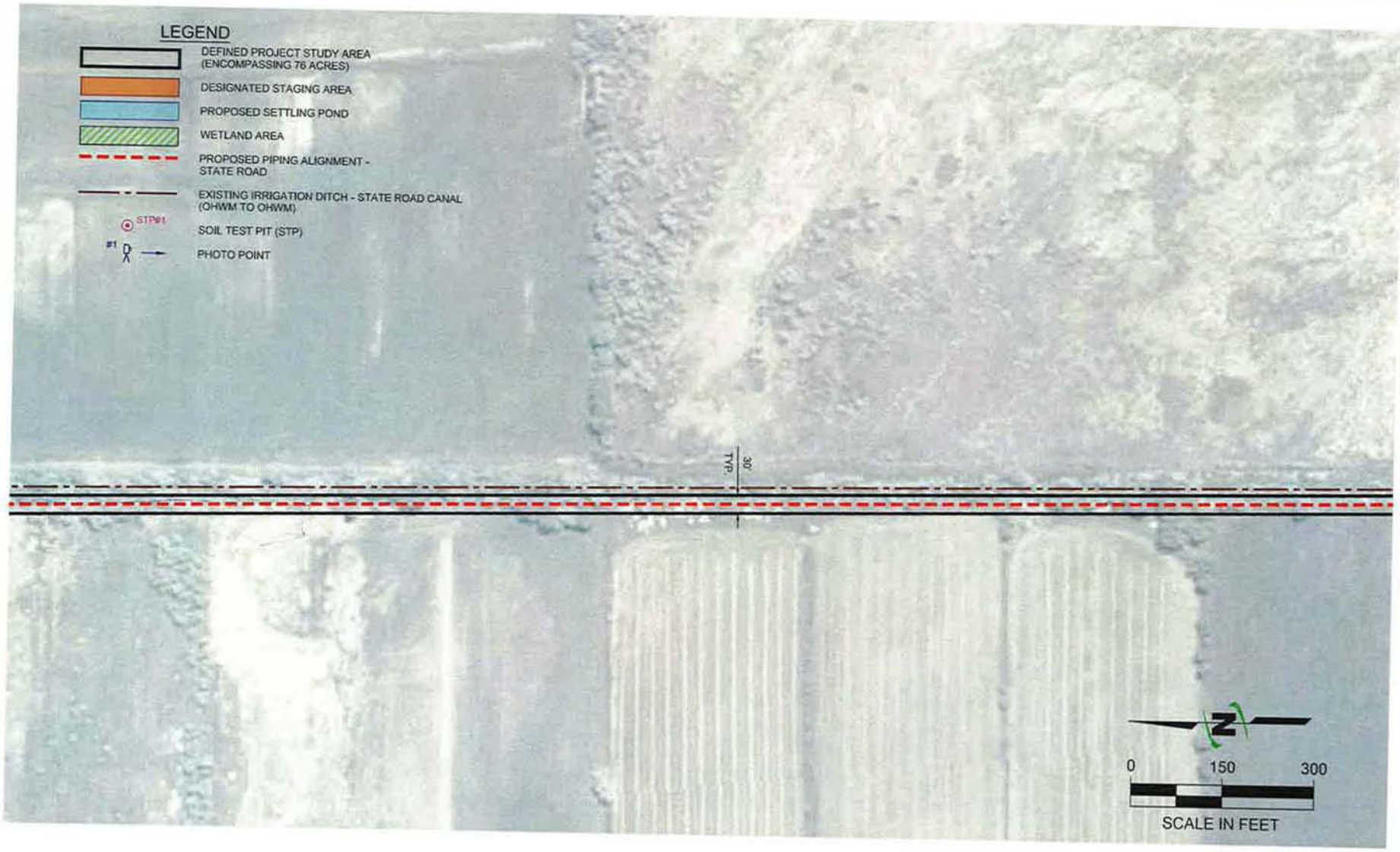
21 of 25



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22 of 25

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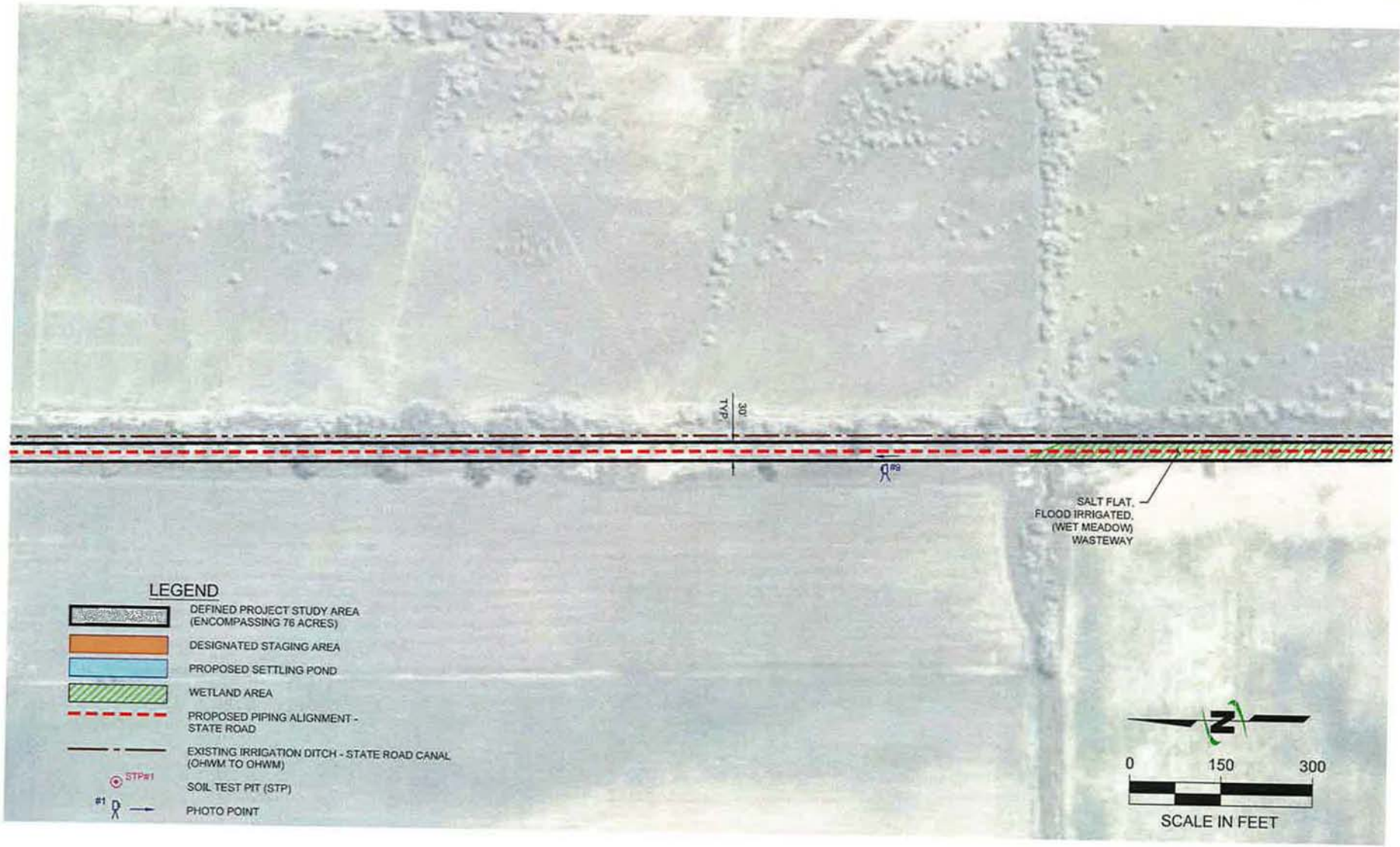
23 of 25



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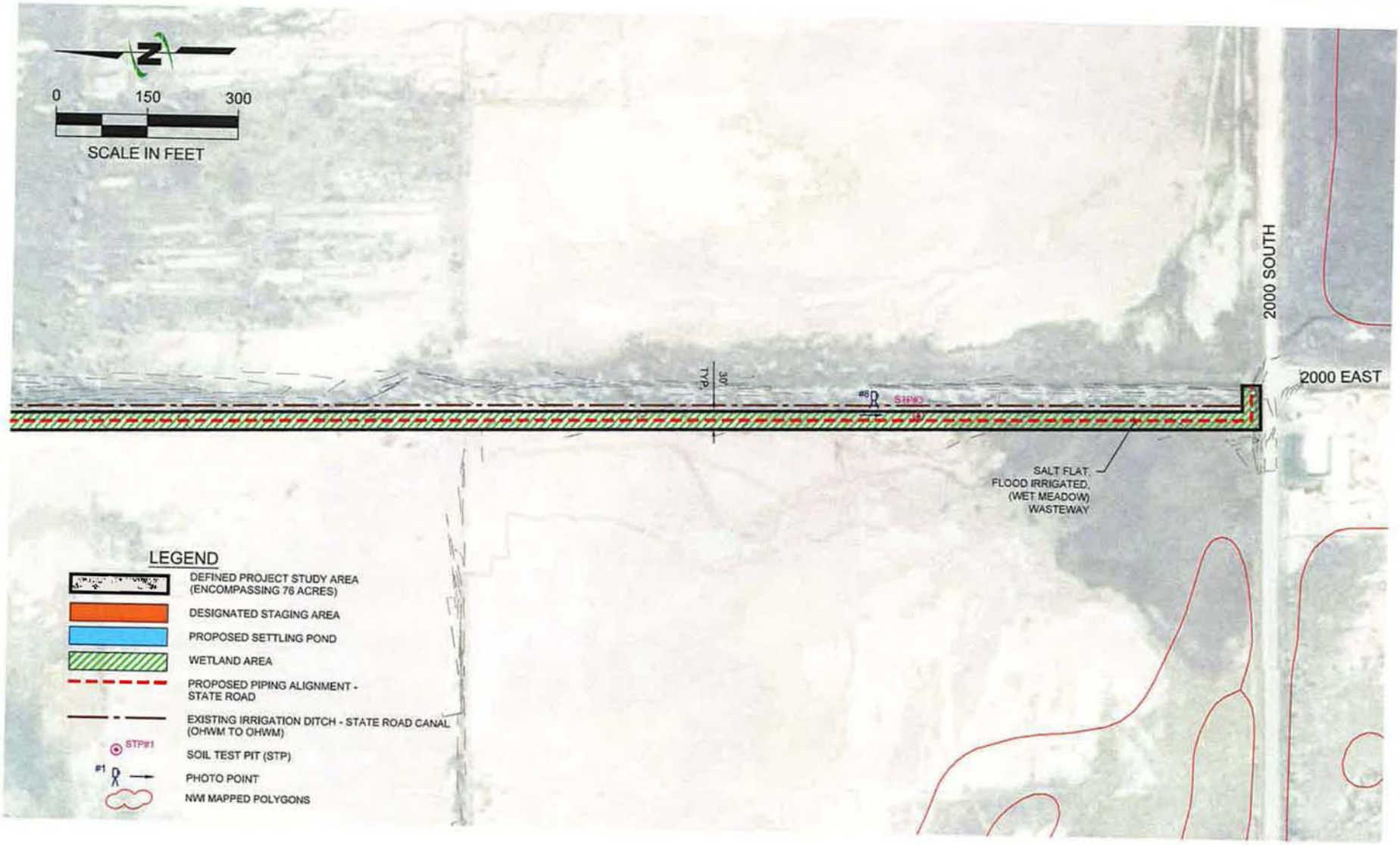
24 of 25



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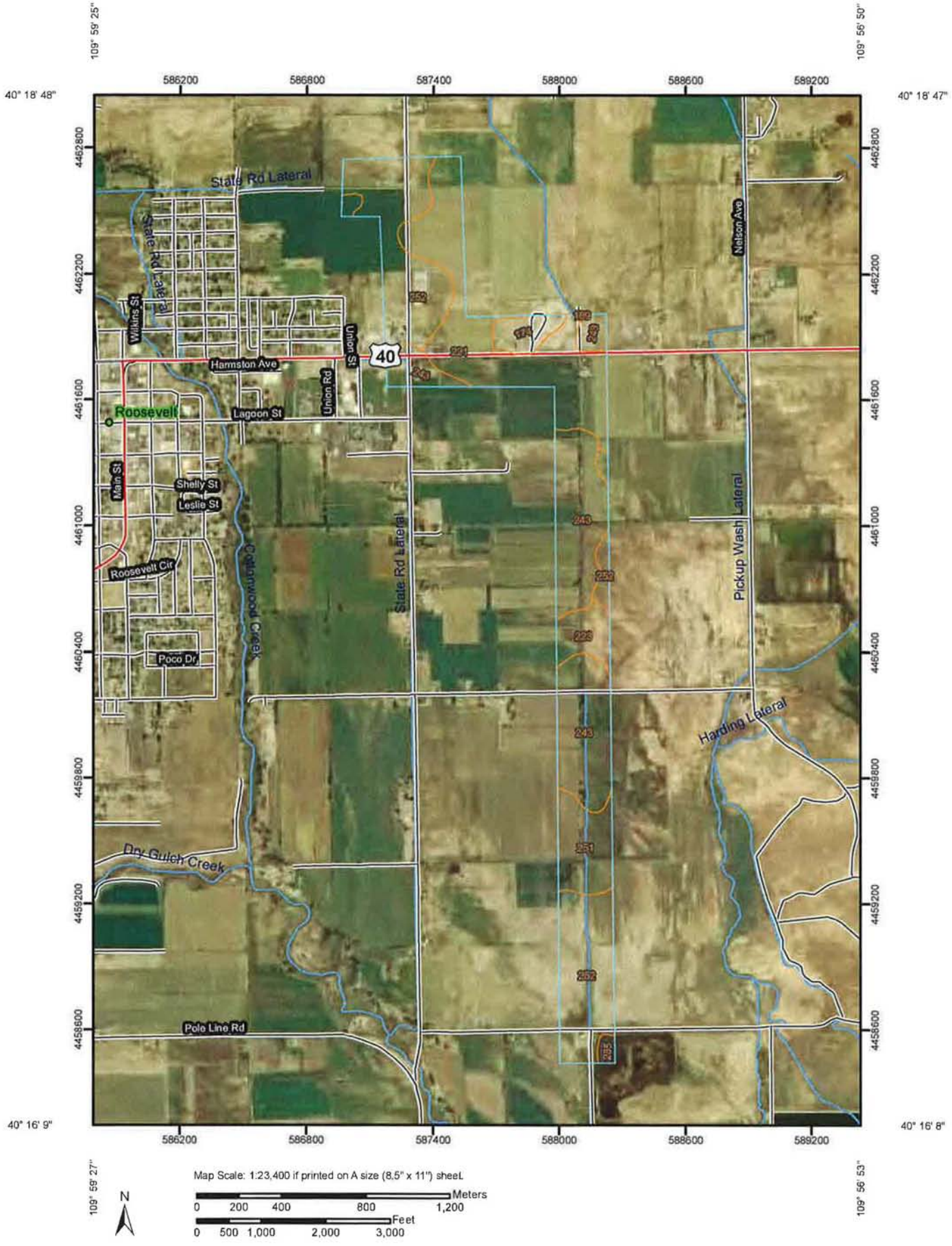
25 of 25


109° 59' 25"
109° 56' 50"
40° 18' 48"
40° 18' 47"
586200
586800
587400
588000
588600
589200
4462800
4462200
4461600
4461000
4460400
4459800
4459200
4458600
State Rd Lateral
State Rd Lateral
Wilkins St
Union St
40
Harmston Ave
Union Rd
Nelson Ave
Roosevelt
Lagoon St
Main St
Shelly St
Leslie St
Roosevelt Cir
Cottonwood Creek
State Rd Lateral
Pickup Wash Lateral
Poco Dr
Harding Lateral
Dry Gulch Creek
Pole Line Rd
40° 16' 9"
40° 16' 8"
109° 59' 27"
109° 56' 53"
Map Scale: 1:23,400 if printed on A size (8.5" x 11") sheet.
N
Meters
0 200 400 800 1,200
Feet
0 500 1,000 2,000 3,000

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:23,400 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Uintah Area, Utah - Parts of Daggett, Grand and Uintah Counties
Survey Area Data: Version 7, Oct 5, 2009

Date(s) aerial images were photographed: 7/15/2006

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Uintah Area, Utah - Parts of Daggett, Grand and Uintah Counties (UT047)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
174	Pariette loam, 2 to 4 percent slopes	11.6	3.1%
189	Riemod loam, 2 to 4 percent slopes	0.3	0.1%
221	Stygee clay loam, 0 to 1 percent slopes	93.9	25.0%
223	Stygee silty clay loam, 0 to 1 percent slopes	14.7	3.9%
243	Turzo-Umbo complex, 0 to 2 percent slopes	108.0	28.8%
251	Umbo clay loam, 0 to 2 percent slopes	27.5	7.3%
252	Umbo silty clay loam, 0 to 2 percent slopes	116.6	31.1%
285	Water	2.6	0.7%
Totals for Area of Interest		**375.2**	**100.0%**

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: State Road Canal City/County: Roosevelt / Duchesne Sampling Date: 9/27/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 1 (Upland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: NW 1/4 Sec. 16, T2S, R1W

Landform (hillslope, terrace, etc.): valley or terrace Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Interior Deserts (D) Lat: 040.3119765° N Long: 110.0095478° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: None mapped or defined in this area

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

STP #1 is located approximately 30 feet landward of the left bank of Cottonwood Creek and along the proposed overflow pipeline alignment, stemming from the proposed settling basin.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. *Chrysothamnus spp.*	25	YES	FACU
2. *Elaeagnus angustifolia*	15	YES	FAC
3. *Artemisia tridentata*	5	NO	FACU
4.			
5.			
	45 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Bromus tectorum*	30	YES	FACU
2. *Ambrosia artemisiifolia*	10	YES	FACU
3. *Descurainia sophia*	5	NO	FACU
4. *Salsola pestifer*	5	NO	FACU
5. *Agropyron trachycaulum*	5	NO	FACU
6. *Centaurea maculosa*	5	NO	FACU
7. *Chenopodium berlandieri*	5	NO	FACU
8. *Kochia scoparia*	5	NO	FACU
	80 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 15	x 3 = 45
FACU species 110	x 4 = 440
UPL species _____	x 5 = _____
Column Totals: 125 (A)	485 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Vegetative parameter is not fulfilled. Vegetative community is characterized as "FACU".

SOIL

Sampling Point: STP # 1 (Upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 4/4	100					Fine sand	
6-24	7.5YR 4/4	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

No hydric indicators observed; upland setting present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

STP dry to a depth of 24 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: State Road Canal City/County: Roosevelt / Uintah Sampling Date: 9/27/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 2 (Upland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: NW ¼ Sec. 23, T2S, R1W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Interior Deserts (D) Lat: 040.2963461° N Long: 109.9636631° W Datum: NAD 27

Soil Map Unit Name: Turzo-Umbo complex, 0 to 2 percent slopes (243) NWI classification: None mapped or defined in this area

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____ No X	
Wetland Hydrology Present?	Yes ____ No X	

Remarks:

STP #2 is situated in a cultivated field landward of the right bank of the existing State Road Canal; upland setting is present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1. *Elaeagnus angustifolia*	10	YES	FAC
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. *Medicago spp.*	40	YES	FAC
2. *Ambrosia artemisiifolia*	15	NO	FACU
3. *Centaurea maculosa*	15	NO	FACU
4. *Helianthus annuus*	10	NO	FACU
5. *Salsola pestifer*	10	NO	FACU
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species 50	x 3 = 150
FACU species 50	x 4 = 200
UPL species ____	x 5 = ____
Column Totals: 100 (A)	350 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

Based on the dominance test, the parameter is met; however, it should be noted that the prevalence index worksheet yields a 3.5, which correlates to a FAC-FACU vegetative community.

SOIL

Sampling Point: STP # 2 (Upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-24	7.5YR 4/3	100					Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

No hydric indicators observed; upland setting present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

STP dry to a depth of 24 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: State Road Canal City/County: Roosevelt / Uintah Sampling Date: 9/27/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 3 (Wetland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: SW ¼ Sec 26, T2S, R1W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Interior Deserts (D) Lat: 040.2768392° N Long: 109.9634429° W Datum: NAD 27

Soil Map Unit Name: Umbo silty clay loam, 0 to 2 percent slopes (252) NWI classification: PEMA in the vicinity

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

STP is located near the southeast end of the project in a flood irrigated wasteway Salt flat, wet meadow present.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. *Elaeagnus angustifolia*	5	YES	FAC
2. *Tamarix ramosissima*	5	YES	FACW
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Distichlis spicata*	10	YES	FAC
2. *Phalaris arundinacea*	10	YES	OBL
3. *Salicornia rubra*	10	YES	OBL
4. *Juncus balticus*	5	NO	FACW
5.			
6.			
7.			
8.			
	35 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 20	x 1 = 20
FACW species 10	x 2 = 20
FAC species 15	x 3 = 45
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: 45 (A)	85 (B)

Prevalence Index = B/A = 1.89

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetative parameter is fulfilled.

SOIL

Sampling Point: STP # 3 (Wetland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1/4	10YR 8/1	100					Salt crust	
1/4 -14	7/5YR 4/4	100					Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Hydrogen sulfide smell in upper 12 inches of the soil profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 10

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Hydrology parameter fulfilled.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hancock Canal City/County: Roosevelt / Duchesne Sampling Date: 9/28/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 4 (Wetland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: N ½ Sec. 33, T2S, R2W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Interior Deserts (D) Lat: 040.2724604° N Long: 110.1147288° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: None mapped or defined in this area

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Flood irrigated wet meadow present. This area is actively grazed by cows.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Juncus balticus*	45	YES	FACW
2. *Distichlis spicata*	30	YES	FAC
3. *Hordeum jubatum*	10	NO	FAC
4. *Salicornia rubra*	5	NO	OBL
5. *Scirpus validus*	5	NO	OBL
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	45	x 2 =	90
FAC species	40	x 3 =	120
FACU species	_____	x 4 =	_____
UPL species	_____	x 5 =	_____
Column Totals:	90 (A)		220 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetative parameter is fulfilled.

SOIL

Sampling Point: STP # 4 (Wetland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1/4	10YR 8/1	100					Salt crust	
1/4-2	7.5YR 4/3	100					Sand	
2-19	2.5N 2.5/	100					Sand	10% cobbles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- X Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Gleyed matrix between 2-19 inches; which indicates that this soil is saturated for a significant duration during the growing season.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 15

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Artificial hydrology- flood irrigated.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hancock Canal City/County: Roosevelt / Duchesne Sampling Date: 9/28/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 5 (Upland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: N ½ Sec. 34, T2S, R2W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Interior Deserts (D) Lat: 040.2723278° N Long: 110.0966947° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: None mapped or defined in this area

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

This STP is located approximately 30 feet landward of the right bank of the Pole Line Lateral. STP #5 is paired with STP #4, to help define the extent of the flood irrigated wet meadow.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. *Chrysothamnus spp.*	50	YES	FACU
2. *Artemisia tridentata*	20	YES	FACU
3. *Elaeagnus angustifolia*	10	NO	FAC
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Distichlis spicata*	25	YES	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	25 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species _____	x 1 =	_____
FACW species _____	x 2 =	_____
FAC species 35	x 3 =	105
FACU species 70	x 4 =	280
UPL species _____	x 5 =	_____
Column Totals: 105 (A)		395 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

FACU community present; vegetation parameter is not met.

SOIL

Sampling Point: STP # 5 (Upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 4/3	100					Sand	
10-22	7.5YR 4/3	100					Sandy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features or hydric indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

STP completely dry to a depth of 22 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hancock Canal City/County: Roosevelt / Duchesne Sampling Date: 9/28/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 6 (Upland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: SW ¼ Sec. 26, T2S, R2W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 3 - 5

Subregion (LRR): Interior Deserts (D) Lat: 040.2760821° N Long: 110.0814453° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: PEMB in the vicinity

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

STP #6 and #7 were paired to define the sloped wetland (tail-out) extents, stemming down-gradient of the Bass Pond (located east of 5000 West and north of Pole Line Road / 2000 South).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. *Chrysothamnus spp.*	20	YES	FACU
2. *Sarcobatus vermiculatus*	20	YES	FACU
3. *Artemisia tridentata*	10	YES	FACU
4.			
5.			
	50 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Bromus tectorum*	10	YES	FACU
2. *Distichlis spicata*	10	YES	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species 70	x 4 = 280
UPL species _____	x 5 = _____
Column Totals: 70 (A)	280 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

FACU vegetative community, parameter is not fulfilled.

SOIL

Sampling Point: STP # 6 (Upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	5YR 4/6	100					Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

No redox features or hydric indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

STP dry to a depth of 24 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hancock Canal City/County: Roosevelt / Duchesne Sampling Date: 9/28/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 7 (Wetland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: SW ¼ Sec. 26, T2S, R2W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 3 - 8

Subregion (LRR): Interior Deserts (D) Lat: 040.2760821° N Long: 110.0814453° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: PEMB in the vicinity

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

STP #7 is paired with STP #6. "Sloped" wetland setting present.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: _____)			
1. *Populus angustifolia*	5	YES	FAC
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1. *Sarcobatus vermiculatus*	15	YES	FACU
2. *Elaeagnus angustifolia*	5	YES	FAC
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: _____)			
1. *Distichlis spicata*	35	YES	FAC
2. *Typha latifolia*	35	YES	OBL
3. *Juncus balticus*	15	NO	FACW
4. *Hordeum jubatum*	10	NO	FAC
5. *Polypogon monspeliensis*	5	NO	FACW
6.			
7.			
8.			
	100	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 35	x 1 = 35
FACW species 20	x 2 = 40
FAC species 55	x 3 = 165
FACU species 15	x 4 = 60
UPL species _____	x 5 = _____
Column Totals: 125 (A)	300 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Parameter fulfilled. FAC-FACW community present.

SOIL

Sampling Point: STP # 7 (Wetland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1/4	10YR 8/1	100					Salt crust	
1/4-3	10YR 4/3	100					Sand	
3-18	2.5YR 2.5/	50					Sand	Dual matrix
3-18	5YR 4/4	50					Silty clay	Dual matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- _X_ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- _X_ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes _X_ No ___

Remarks:

Hydrogen sulfide smell within the upper 12 inches of STP. Gleyed matrix between 3-18 inches; which indicates that this soil is saturated for a significant duration during the growing season.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- _X_ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- _X_ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___

Water Table Present? Yes _X_ No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes _X_ No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes _X_ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Hydrology parameter met.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hancock Canal City/County: Roosevelt / Duchesne Sampling Date: 9/28/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 8 (Wetland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: E ½ Sec. 18, T2S, R1W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Interior Deserts (D) Lat: 040.3097927° N Long: 110.0296225° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: None mapped or defined in this area

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

STP #8 and #9 were paired to define the wetland extents linked to the proposed pipe crossing at this wash area. This wash is "un-named".

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. *Tamarix ramosissima*	10	YES	FACW
2. *Salix exigua*	5	YES	OBL
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Typha latifolia*	60	YES	OBL
2. *Phalaris arundinacea*	20	YES	OBL
3. *Phragmites australis*	10	NO	FACW
4. *Juncus balticus*	5	NO	FACW
5. *Carex spp.*	<1	NO	FACW
6. *Hordeum jubatum*	<1	NO	FAC
7. *Solanum dulcamara*	<1	NO	FAC
8.			
	98 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85	x 1 =	85
FACW species	26	x 2 =	52
FAC species	2	x 3 =	6
FACU species	_____	x 4 =	_____
UPL species	_____	x 5 =	_____
Column Totals:	113 (A)		143 (B)

Prevalence Index = B/A = 1.27

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetation parameter met. OBL-FACW community present.

SOIL

Sampling Point: STP # 8 (Wetland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR 4/2	80	7.5YR 4/6	20	C	M	Sand	
8-23	7.5YR 4/1	60	7.5YR 4/6	10	C	M	Silty clay	Dual matrix
8-23	2.5N 2.5/	30					Silty clay	Dual matrix

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Common redox concentrations observed in upper profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 10

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Hydrology parameter met. Flowing water was observed near thalweg of the wash area. Flowing water attributed to irrigation return waters.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hancock Canal City/County: Roosevelt / Duchesne Sampling Date: 9/28/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 9 (Upland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: E ½ Sec. 18, T2S, R1W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 45

Subregion (LRR): Interior Deserts (D) Lat: 040.3097927° N Long: 110.0296225° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: None mapped or defined in this area

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Paired with STP #8. STP #9 is an upland data point. STP #9 was dug on the side slope of the wash area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. *Elaeagnus angustifolia*	20	YES	FAC
2. *Artemisia tridentata*	15	YES	FACU
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Ambrosia artemisiifolia*	40	YES	FACU
2. *Bromus inermis*	20	YES	FACU
3. *Chenopodium berlandieri*	20	YES	FACU
4. *Equisetum arvense*	10	NO	FAC
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species 30	x 3 = 90
FACU species 95	x 4 = 380
UPL species _____	x 5 = _____
Column Totals: 125 (A)	470 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Vegetation parameter is not fulfilled.

SOIL

Sampling Point: STP # 9 (Upland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/3	100					Silt loam	
12-24	7.5YR 4/3	100					Silty clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ____ No X

Remarks:

No redox concentrations or hydric indicators were observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): ____

Water Table Present? Yes ____ No X Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No X Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

STP dry to a depth of 24 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Hancock Canal City/County: Roosevelt / Duchesne Sampling Date: 9/28/2011

Applicant/Owner: Dry Gulch Irrigation Company State: Utah Sampling Point: STP # 10 (Wetland)

Investigator(s): Vince Barthels, J-U-B ENGINEERS, Inc. Section, Township, Range: SE ¼ Sec. 13, T2S, R2W

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): Interior Deserts (D) Lat: 040.3067689° N Long: 110.0564255° W Datum: NAD 27

Soil Map Unit Name: No soil data available for this area NWI classification: PEMA in the vicinity

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? NO Are "Normal Circumstances" present? Yes X No ___

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? NO (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** **Yes X** **No _____**
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

STP #10 captures another flood irrigated wet meadow. No paired STP was established because the transition occurs at a corral and at a road crossing (i.e. South Cove Road).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1. *Elaeagnus angustifolia*	15	YES	FAC
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: _____)			
1. *Distichlis spicata*	35	YES	FAC
2. *Hordeum jubatum*	20	YES	FAC
3. *Juncus balticus*	20	YES	FACW
4. *Panicum capillare*	5	NO	FACU
5. *Polypogon monspeliensis*	5	NO	FACW
6. *Rumex crispus*	5	NO	FACW
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species 30	x 2 = 60
FAC species 70	x 3 = 210
FACU species 5	x 4 = 20
UPL species _____	x 5 = _____
Column Totals: 105 (A)	290 (B)

Prevalence Index = B/A = 2.76

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No _____**

Remarks:

Vegetation parameter is met. FAC community present.

SOIL

Sampling Point: STP # 10 (Wetland)

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-1/4		100					Salt crust	
1/4-2	7.5YR 4/3	100					Silty clay	w/ organic material (20%)
2-15	2.5YR 4/4	100					Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Hydrogen sulfide smell in upper profile.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- X Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes X No ___ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 6

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Hydrology is artificial; stemming from flood irrigation.

Photo Inventory

The following twenty four photos were taken on September 27th and September 28th, 2011. The first nine photos were taken on September 27th of the State Road Canal alignment.

Photo 1: This is the existing diversion structure at Cottonwood Creek (left bank) that corresponds with the northwest beginning of the State Road Canal. This diversion structure would be modified to divert waters into the proposed settling basin. The proposed settling basin would supply the proposed State Road piping system.

Photo 2: This photo captures the ordinary high water mark (OHWM) stake positioned along Cottonwood Creek (left bank) at ford crossing, downstream of diversion illustrated in photo # 1.

Photo 3: Soil test pit (STP) #1 is located approximately 30 feet landward of the left bank of Cottonwood Creek. This upland STP is located along the proposed overflow pipeline alignment stemming from the proposed settling basin. A rabbit-brush / sage brush community dominates this area.

Photo 4: View of an OHWM stake along the existing alignment of the State Road Canal, located approximately 100 feet downstream of the diversion illustrated in photo #1.

Photo 5: View looking easterly at proposed piping alignment that parallels the northern edge of this planted wheat field.

Photo 6: This photo captures the OHWM stakes placed along State Road Canal, located approximately 0.75 miles downstream of the diversion (Photo # 1).

Photo 7: This upland area, represented by STP #2, is situated in a flat, cultivated field; landward of the right bank of the existing State Road Canal.

Photo 8: This photo captures STP #3, located near the southeast end of the project area correlated to the proposed piping alignment of State Road Canal. On the right side of the photo, there is a salt flat, which is within a flood irrigated wasteway.

Photo 9: View of area north of wetland salt flat area documented in Photo 8. The proposed piping alignment travels along the right edge of the planted alfalfa field. No wetlands were observed in this cultivated area.

The next fourteen photos were taken on September 28th and illustrate pertinent locations along the Hancock Canal piping alignment.

Photo 10: This photo captures STP #4, located within a flood irrigated wet meadow. The herbaceous vegetative community here is dominated by Baltic rush, salt grass and foxtail barley. This area is actively grazed by livestock. The white box trailer in the photo background marks the location of the proposed new settling pond.

Photo 11: In the center of this photo, a wooden stake with orange flagging marks STP #5, which is located approximately 30 feet landward of the right bank of the Pole Line/Martin Lateral, along 2000 South. This STP was established to help define with wetland transition between STP # 4 and # 5.

Photo 12: This photo captures the outflow of the Martin Lateral at a drive crossing. The new Hancock piping alignment crosses the Martin Lateral at this location and then heads northeasterly. The wooden stakes with the orange flagging mark the OHWM. The vegetative community is dominated by reed canary grass; at this proposed crossing, no woody vegetation would be cleared.

Photo 13: Looking southwesterly, this photo captures the established transect containing STPs # 6 and # 7, and wetland boundary (WB) stake. At this location, the dominant hydrophytic species is salt grass.

Photo 14: This photo captures a view of hydric soils encountered at STP #7. At STP # 7, a gleyed dual sandy matrix was encountered between 3 and 18 inches below grade. The gleyed matrix coupled with the hydrogen sulfide smell indicates that this area is saturated for a significant duration during the growing season.

Photo 15: Looking southwest along the proposed piping alignment, this photo captures the location of the wetland boundary, located on the northeastern end of Bass pond sloped wetland tail-out.

Photo 16: This photo is the inverse of photo # 15. Looking northeasterly, this photo captures the wetland boundary location (and evident topography shift) of the identified sloped wetland (tail-out) stemming down-gradient of the Bass Pond.

Photo 17: This photo captures the Martin Lateral along 2000 South, east of 4000 West. The proposed piping alignment is located in this existing/established irrigation ditchline. Post piping installation, a roadside swale would be cut into this area to handle roadway stormwater and irrigation run-off waters.

Photo 18: Looking westerly, this photo captures the transect containing STPs # 8 and # 9 as well as the wetland boundary stakes, located at a crossing of an un-named gulch. STPs are marked with lath and orange flagging; whereas, wetland boundary locations are marked with lath and pink flagging.

Photo 19: Looking easterly, this photo is the inverse of photo # 18. The proposed piping alignment does cross perpendicularly through this un-named gulch. The un-named gulch is characterized as a sloped wetland, dominated by cattails.

Photo 20: This photo captures a corral that is located at the transition from an upland area to a wetland area. The wetland area is an irrigation induced wet meadow (see photo 21).

Photo 21: In the center of this photo illustrates STP #10, located in a flood irrigated wet meadow. Salt grass, Baltic rush, foxtail barley and sparsely scattered Russian olives dominate the vegetative community of this wet meadow. This wet meadow is grazed by livestock.

Photo 22: This photo captures the end of the flood irrigated wet meadow illustrated by photo # 21. The northern right-of-way edge correlated to South Cove Road is correlated to the southern extents of the wetland area.

Photo 23: This photo captures an ephemeral drainage crossing along the Hancock piping alignment, where the channel width (OHWM to OHWM) is 9.25'.

Photo 24: Looking northerly at a segment of the proposed Hancock alignment, where the piping alignment is situated within this gravel utility service road footprint.

Appendix B
Biological Assessment

NO EFFECT DETERMINATION
FOR
2011-2012 Dry Gulch Irrigation Company Hancock and State Road Lateral Salinity Reduction Project (Duchesne and Uintah Counties, Utah)

The following No Effect Determination has been prepared, as required by Section 7(c) of the Endangered Species Act (ESA), for the proposed 2011-2012 Dry Gulch Irrigation Company Hancock and State Road Lateral Salinity Reduction Project located in Duchesne and Uintah Counties, Utah. A site review and pedestrian survey were conducted on September 27th and 28th, 2011 by Vincent Barthels, qualified biologist. This report will serve as the no effects analysis of potential impacts resulting from the proposed project on species listed as endangered, threatened, proposed, or candidate and designated or proposed critical habitat protected under the ESA.

Proposed Action

The Bureau of Reclamation (BOR) has programmed the use of federal funds, under their Colorado River Basin Salinity Control Program, to allow the project proponent (i.e. Dry Gulch Irrigation Company) to replace several existing unlined earthen canals and laterals with a pipeline. The proposed action would abandon approximately 18.02 linear miles of existing open unlined earthen laterals and connect to approximately 12 linear miles of piped irrigation lines, with approximately 16.72 lines miles of new pipeline. The proposed new piping alignments are illustrated on the attached Aerial Project Summary Exhibit. Ninety percent (or approximately 27 linear miles) of the abandoned laterals would be vacated in place; meaning, no vegetation clearing or earthwork would occur in the established laterals. The vacated laterals would incur supplemental hydrology from tail waters originating from irrigation waters received at higher elevations adjacent to proposed project. Some of the abandoned laterals would function as roadway swales for stormwater detention. This large scale irrigation infrastructure project would reduce the amount of water lost through seepage along these canals and subsequently reduce the salinity loading of the Colorado River Basin by a total of 2,359 tons annually. Replacing these open unlined earthen canals with buried HDPE pipe, would also improve the efficiency of the water delivery system in the project service area.

The proposed project contains four primary elements or phases. These individual phases include: three Hancock Lateral piping projects (i.e. Phases 1-3) and the State Road Lateral piping project. The Hancock Phase 1 initiates off of a new diversion point along the Class D Canal. The start of this project is located in the NW ¼ of Section 33, Township 2 South, Range 2 West and ends in the SW ¼ of Section 13, Township 2 South, Range 2 West, Uintah Special Base and Meridian. The Hancock Phase 1 would eliminate the need for the existing Hancock Lateral that initiates immediately downstream of the diversion structure off of Dry Gulch Creek, which is situated immediately downstream of the confluence of the Class D Canal into Dry Gulch Creek. Due to easement availability, the pipe alignment of this phase would cross Dry Gulch Creek in one location, the Martin Lateral in one location, and the Hancock Canal in two locations. Details of canal crossings are discussed below. This phase would install approximately 4.89 miles of HDPE pipe that ranges in size between 30" and 42" in diameter. The Hancock Phase 1 would deliver irrigation water to a total 20 turn-outs and should reduce

the annual salt allocation by 600 tons per year compared to the existing conditions associated with the open, unlined laterals.

Hancock Phase 2 begins at the end of Phase 1 in Section 13 and ends in the SE ¼ of Section 20, Township 2 South, Range 1 West. It would replace approximately 8.2 miles of the Hancock Canal and Sterling Lateral with 3.7 miles of HDPE pipe ranging from 8" to 30". Phase 2 delivers to 17 turnouts and would reduce the annual salt allocation by 796 tons. No locations along the existing Hancock Canal would be disturbed by the Phase 2 pipe project.

Hancock Phase 3 splits off of Phase 1 on Pole Line Rd in the northwest corner of Section 35 in order to replace 3.1 miles of the Martin Lateral with a 24" HDPE pipe. It ends in the NW ¼ of Section 32, Township 2 South, Range 1 West. Approximately 2.9 miles of the Martin Lateral would be filled in with the pipe. It is likely that a small drainage swale would be left in its place to accommodate roadside drainage. Locations along the canal containing large trees would be left generally undisturbed. Phase 3 delivers to 3 turnouts and would reduce the annual salt load by 262 tons.

The State Road Phase is not physically connected to the Hancock Phases. It begins in the NW ¼ of Section 16, Township 2 South, Range 1 W. and ends in the SW ¼ of Section 26 of the same township and range. It would replace 8.75 miles of the State Road Lateral with 4.7 miles of HDPE ranging between 18" and 34". The alignment of the pipe would generally stay south or west of the tree lines on the existing canal, thus leaving the existing canals relatively undisturbed. Due to easement needs, the pipe alignment would cross the northern section of the canal in two locations and then it would cross the canal again just south of HWY 40. Two more canal crossings would be necessary along the eastern-most canal in order to service water users. The State Road Pipe project would deliver to approximately 46 turnouts and would reduce the annual salt load by 701 tons.

The proposed action would also include the construction of a settling pond at the beginning of the Hancock Canal and the construction of a settling basin at the start of the State Road Lateral. These facilities would be approximately 530' by 450' and 200' by 400', respectively. Excavated material would be used as fill wherever possible. Embedment would be needed wherever rocky subsurface conditions exist. It is roughly estimated that approximately 25,000 tons of embedment (mostly sand) would need to be imported from sites near the construction. Most of this embedment would be taken from the two new pond sites.

The aforementioned canal crossings would occur through open excavation through the canal and would result in the removal of all trees and vegetation within 15' on either side of the crossing. The top of the pipe would not extend higher than the bank of the canal, such that any drainage water within the canal would stay in the canal and continue downstream.

The large majority of earthwork would be done using a track-hoe. All surfaces will be restored to existing conditions, excluding re-seeding. All phases are planned to be constructed during the non-irrigation period beginning as early as December 2011 and with project completion expected by April 2012. Construction activities may extend until April 2013, if necessary. Irrigation for 2012 would occur via the pipe project where possible and via the existing canal wherever the pipe system has not been completed.

The staging areas shown on the attached Aerial Project Summary Exhibit would be used for the Hancock Phases, except for the furthest east staging area, which would be used for the State Road project.

New easements would be required for the proposed pipeline alignments. The majority of these easements would be on private property through open agricultural fields. In some locations (e.g. along Pole Line Road) that are apparent on the map, existing city or county ROW may be used. The dedication of individual water rights would remain unaltered post project implementation.

Best Management Practices (BMPs) would be in place to minimize direct, short-term construction impacts. Planned BMPs herein are intended to restore vegetative structure and minimize erosion. These measures include re-planting barren locations (post-construction) with native vegetation. BMPs are mandatory and would become part of the project design. They would include, but are not limited to the following:

1. Temporary erosion sediment control (TESC) structures would be in effect during construction.
2. Excavation, staging areas and the new pipeline installation would only occur within staked limits of the project action area.
3. All disturbed upland areas would be re-seeded upon project completion with a dry land seed mix.

General Project Location and Habitat Descriptions

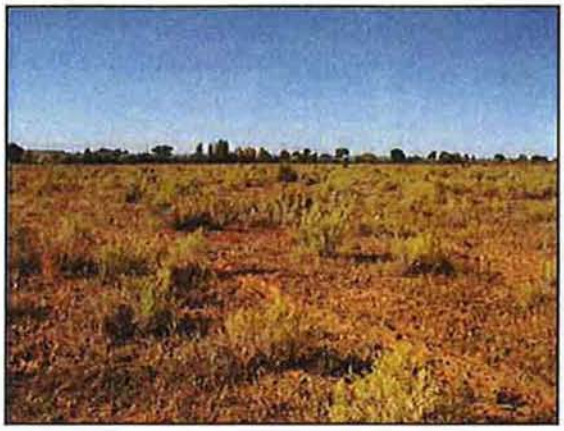
The proposed project is located in Sections 12, 13, 14, 23, 24, 26, and 27, Township 2 S, Range 2 W; and, Sections 7, 8, 14, 15, 16, 17, 18, 20, 21, 22, 23, 26, 27, 28, 29 and 30, Township 2 S, Range 1 W, Duchesne and Uintah Counties, Utah. Land use within the project vicinity is primarily agricultural. The project action area ranges between 5,000 and 5,300 feet above sea level. This project traverses through the town of Roosevelt.

Description of the Ecoregions of the United States describes the proposed action area as an Intermountain Semidesert and Desert Province (Bailey 1995). The undeveloped land cover is dominated by sagebrush communities. Soils throughout the project action area consist of sandy textured aridisols. Mapped soil information is extremely limited for the project action area and is only available for Uintah County. In this ecoregion, streams are not abundant, and when they are present, they are typically ephemeral or intermittent.

The habitat in the project action area can be characterized as pre-developed, since most of the project action area does not contain natural, undisturbed habitat. A large percentage of the new pipe alignment would exist in planted agricultural fields. Fish bearing habitat is not present along the pipeline alignment. As a separate technical report, a wetland delineation report was completed for the entire proposed alignment. The wetland report details the vegetation assemblages that were encountered.

The photos below illustrate the project action area from two different vantage locations. The left photo was taken near the middle of the proposed State Road pipe alignment; at this location, the new alignment is situated along the edge of an alfalfa field. The right photo was taken looking southwest, along the proposed Hancock Phase 1 alignment, toward the intersection of Pole Line Road/2000 South and 5000 West; uncultivated areas in the project

action area are dominated by sparse sagebrush communities like this one. This particular area is grazed by several horses.



Endangered Species Act (ESA) Consultation

The US Fish and Wildlife Service's (USFWS) list of Utah's Endangered, Threatened, Proposed, and Candidate Species lists seventeen species within Duchesne and Uintah Counties.

Table 1 - A summary of ESA listed species for the defined project area (USFWS Duchesne and Uintah County Lists, dated June 13th, 2011)

Common Name	Scientific Name	ESA Status	Effect Determination
Barneby ridge-cress	*Lepidium barnebyanum*	Endangered	No Effect (NE)
Black-footed ferret	*Mustella nigripes*	Endangered	No Effect (NE)
Bonytail	*Gila elegans*	Endangered	No Effect (NE)
Canada lynx	*Lynx canadensis*	Threatened	No Effect (NE)
Clay reed mustard	*Schoenocrambe argillacea*	Threatened	No Effect (NE)
Colorado pikeminnow	*Ptychocheilus lucius*	Endangered	No Effect (NE)
Graham's beardtongue	*Penstemon grahamii*	Proposed	No Effect (NE)
Greater sage-grouse	*Centrocercus urophasianus*	Candidate	No Effect (NE)
Humpback chub	*Gila cypha*	Endangered	No Effect (NE)
Mexican spotted owl	*Strix occidentalis lucida*	Threatened	No Effect (NE)
Pariette cactus	*Sclerocactus brevispinus*	Threatened	No Effect (NE)
Razorback sucker	*Xyrauchen texanus*	Endangered	No Effect (NE)
Shrubby reed-mustard	*Schoenocrambe suffrutescens*	Endangered	No Effect (NE)
Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	Threatened	No Effect (NE)
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened	No Effect (NE)
Yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate	No Effect (NE)
White River penstemon	*Penstemon scariosus albifluvis*	Candidate	No Effect (NE)

The Utah Division of Wildlife Resources (UDWR) maintains a central database for species of concern in Utah. Their database is geared to produce records geographically for areas of interest. On September 19, 2011, the UDWR provided a response letter (see attached) regarding information on ESA species and state listed species of special concern within the

proposed project action area. The UDWR has records of only one species of concern in the project action area, the white-tailed prairie dog (*Cynomys leucurus*). Notably, the UDWR does not have any recent or historic records of occurrence of any of the above mentioned ESA listed species.

Species Specific Habitat Requirements and Determination of Effect

The following subsection briefly discusses the species mentioned above and their habitat descriptions; and, then provides an effect determination for each individual species.

Barneby ridge-cress

Barneby ridge-cress is a federally listed endangered plant that occurs only in Duchesne County, Utah. Barneby ridge-cress is a perennial herb that is a member of the mustard family. Flowering occurs in May and June, with white to cream colored flowers. The species grows in shallow fine textured soils intermixed with fragmented shale. The species is found in pinyon-juniper woodlands along semi-barren ridges at elevations ranging from 6,102 to 6,447 feet (1,860 to 1,965 meters) above sea level. Threats to the species include recreational use of off-road vehicles and oil and gas development (UDWR 2011).

The project action area is situated between 5,000 and 5,300 feet above sea level, far below the documented range for this species. The new pipe alignments do not traverse through any pinyon-juniper woodlands, where this species is typically found. Barneby ridge-cress is not expected to be present in the project action area based on the elevation and described plant associations; therefore, a no effects determination is warranted for Barneby ridge-cress.

Black-footed ferret

The black-footed ferret is known to live in underground prairie dog burrows and eat prairie dogs as their main source of food. They are nocturnal mammals that breed during the months of March and April. These ferrets are an endangered ESA listed species that are being reintroduced in certain parts of eastern Utah and southwestern Wyoming (UDWR 2011).

White-tailed prairie dog towns are considered common in Duchesne and Uintah Counties. The UDWR has recent records of white-tailed prairie dogs throughout the project action area. Habitat for these towns occur in sandy soils, typically in the sage brush dominated communities. Habitat conditions for these towns are not linked to the individual laterals or canals (i.e. below the wetted channel), because of the associated effect of flooding that would not be conducive to the prairie dog's or the ferret's life cycles.

No surveys were conducted for black-footed ferrets in the anticipated project action area. The USFWS recommends surveys for ferrets if greater than 200 acres of disturbance of white-tailed prairie dog towns is expected. Based on the fact that this project would only disturb approximately 60 acres, and a large percentage of the project action areas consist of planted agricultural fields, a survey would not appear to be warranted in this case. Based on the discountable habitat impacts associated with potential black-footed ferrets, a no effects determination is warranted for this project.

Bonytail

The bonytail is a federally listed endangered minnow that is originally native to the Colorado River system. The near extinction of the bonytail can be linked back to flow regulation or alteration, habitat loss, and competition and predation by exotic fishes. Bonytail are opportunistic feeders; their prey includes: insects, zooplankton, algae, and higher plant matter. Bonytails spawn in the spring and summer over gravel substrate. Currently, many bonytail are raised in fish hatcheries and released into the wild when they are large enough to survive in their natural environment. Bonytail prefer stream habitat that consists of eddies, pools, and backwaters near swift current in large rivers (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the bonytail within the vicinity of the defined project area (see attached UDWR letter). Not only is the project action area outside of the Colorado River system, this project would not encroach or affect any fish habitat. A no effect determination is warranted for the bonytail.

Canada lynx

The Canada lynx is normally found in dense forested areas with an abundance of windfalls, swamps and brushy thickets (Maas 1997). Lynx require heavy cover for concealment when stalking prey. In terms of their prey base, lynx depend of snowshoe hares. In addition, lynx are most likely to persist in areas that receive deep snow, for which the lynx is highly adapted (Maas 1997). In the western U.S., lynx occurrences generally are found only above 4,000 feet in elevation (McKelvey et al. 2000).

Dense forested areas that provide heavy coverage and foraging opportunities are lacking within the project action area. The project action area lacks suitable habitat for lynx, does not have a prey base of snowshoe hare, and the scope and nature of the proposed construction activity would not impact any Canada Lynx passing through the project area. This project would have no effect on Canada Lynx or its habitat.

Clay reed mustard

The clay reed-mustard is a federally listed threatened species found only in Duchesne and Uintah Counties, Utah. Clay-reed mustard is a perennial that produces white, purple veined flowers that bloom from mid-April to mid-May. This species grows in mixed desert shrub communities at elevations ranging from 4,721 to 5,791 feet (1,439 to 1,765 meters) above sea level, in substrates consisting of bedrock, scree, and fine textured soils. Threats to the species include natural gas exploration and development (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the clay reed-mustard within the vicinity of the defined project area (see attached UDWR letter). A large percentage of the project action area is situated within ongoing agricultural land uses (planted or grazed fields) or pre-disturbed settings (i.e. gravel roads or within existing lateral footprints), where the clay reed-mustard is not expect to occur. This pipeline alignment is not anticipated to traverse through areas consisting of bedrock or scree (talus) substrates, where more suitable habitat for this species may occur. A no effect determination is warranted for the clay reed-mustard, because it is not anticipated to be present in the project action area.

Colorado Pikeminnow

The Colorado pikeminnow is a federally listed endangered minnow that is originally native to the Colorado River system; currently, their range is limited to the upper Colorado River system. The near extinction of the Colorado pikeminnow can be linked to flow regulation or alterations (e.g. the installation of dams), habitat loss, and competition and predation by non-native fishes.

Colorado pikeminnows are mainly piscivorous, meaning they eat fish; younger pikeminnows also eat insects and other invertebrates. They spawn in the spring and summer over gravel or smaller cobble substrate situated in riffle habitat. Adult Colorado pikeminnows prefer medium to large rivers. Young of the species prefer slow-moving backwaters. Historical accounts of six-foot long Colorado pikeminnows make this species the largest minnow in North America (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the Colorado pikeminnow within the vicinity of the defined project area (see attached UDWR letter). The project area is not part of the Colorado River system in which this species is found; therefore, a no effect determination is warranted.

Graham's beardtongue

Graham's beardtounge is a federally listed proposed species that occurs only in the Uinta Basin, located in Carbon, Duchesne, and Uintah Counties of Utah and in Rio Blanco County, Colorado. Graham beardtongue is a member of the figwort family, a perennial herb that has thick leathery leaves, and large tubular flowers that bloom from late May to early June. This species grows on weathered exposures of oil shale strata, on semi-barren knolls, ridges and steep slopes. The elevation range of this species extends from 4,692 to 6,759 feet (1430 to 2060 meters) above sea level, in pinyon-juniper, desert shrub and Salina wildrye communities. Threats to this species include impacts from oil and gas development and grazing (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the Graham's beardtounge within the vicinity of the defined project area (see attached UDWR letter). A large percentage of the project action area is situated within ongoing agricultural land uses (planted or grazed fields) or pre-disturbed settings (i.e. gravel roads or within existing lateral footprints), where the Graham's beardtounge is not expect to occur. The proposed pipeline alignments are not anticipated to traverse through areas consisting of weathered exposures of oil shale strata, where more suitable habitat for this species may occur. A no effect determination is warranted for the Graham's beardtounge, because it is not anticipated to be present in the project action area.

Greater Sage-Grouse

The greater sage-grouse is a federally listed candidate species. As the name implies, greater sage-grouse are found only in areas where sagebrush is abundant (Colorado Division of Wildlife 2009). The largest of all grouse, the greater sage-grouse is up to 30 inches long, 2 feet tall, and weighs from 2 to 7 pounds (USFWS 2010). Male greater sage-grouse have a white breast ruff, mottled gray-brown overall, a black belly, black throat and bib, and long stiff spikelike tail feathers. Females have a mottled gray-brown overall, a black belly, a white throat, and lack the yellow eye comb seen in the males. Diet consists of evergreen leaves, plain sagebrush shoots, blossoms, leaves, pods, buds, and insects (Alsop 2001). Dependent on

sagebrush for food and cover, required habitat consists of relatively open flats or rolling sagebrush hills at elevations ranging from 4,000 to 9,000 feet above sea level (Colorado Division of Wildlife 2009, USFWS 2010). Land clearing and overgrazing by livestock are documented threats to this species' habitat.

The UDWR does not list the greater sage-grouse as a species of concern for the project action area. Habitat requirements for the greater sage-grouse are not present within the project action area. The pre-disturbed or pre-developed setting lacks the open areas with abundant sagebrush in which this species is dependent on for food and cover. A no effect determination is warranted for the greater sage-grouse and its habitat.

Humpback Chub

The humpback chub is a federally listed endangered minnow that is originally native to the upper Colorado River system. Humpback chub originally thrived in the fast, deep, whitewater areas of the Colorado River and its major tributaries. Man-induced flow alterations (i.e. dams), have changed the turbidity, volume, current speed, and temperature of the water in those rivers and has contributed to significant population declines. Documented occurrences of the humpback chub in Utah are now confined to a few whitewater areas in the Colorado, Green, and White Rivers. Humpback chub mainly eat insects and other invertebrates, and occasionally algae and fish. The species spawns during the spring and summer in shallow, backwater areas with cobble substrate. Younger individuals reside in shallower, turbid habitats until they are large enough to move into whitewater areas (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the humpback chub within the vicinity of the defined project area (see attached UDWR letter). The project area is not within the areas that this species inhabits and would not impact any fish habitat; therefore, a no effect determination is warranted for the humpback chub.

Mexican spotted owl

The Mexican spotted owl is a federally listed threatened species that occurs in the southern and eastern parts of Utah, where it is a rare permanent resident. These owls are nocturnal and non-migratory. The spotted owl occupies steep rocky canyons. These owls tend to be opportunistic feeders, which prey on: small mammals (e.g. rabbits), birds, reptiles, and insects. Spotted owls utilize suitable naturally occurring sites and nests built by other animals. In Utah, their nests are often on cliffs. One to four eggs are brooded by the female each year. The eggs are incubated for approximately 32 days. Both parents care for and feed the young. Fledging occurs typically 36 days after the eggs hatch (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the Mexican spotted owl within the vicinity of the defined project area (see attached UDWR letter). The project area is not within steep rocky canyons or cliffs, where this species inhabits. This species is not expected to be present in the project action area; therefore, a no effect determination is warranted for the Mexican spotted owl.

Pariette cactus

The pariette cactus is a federally listed threatened plant. This barrel-shaped cactus has pink barrel shaped flowers and reddish to reddish grey fruit. The range and distribution of the pariette cactus is limited to the Pariette Draw along the Duchesne-Uintah County boundary.

One population, within a 72,000 acre area, is known to exist with only a few individuals being documented in marginal habitat outside the main population area. Threats to the pariette cactus include resource exploration of mineral and energy development, recreational off-road use, grazing, and illegal collection (USFWS 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the pariette cactus within the vicinity of the defined project area (see attached UDWR letter). The project area is not within the Pariette Draw along the Duchesne-Uintah County boundary, where this species is documented to occur. This species is not expected to be present in the project action area; therefore, a no effect determination is warranted for the pariette cactus.

Razorback Sucker

The razorback sucker is a federally listed endangered sucker fish that is originally native to the Colorado River system. The near extinction of the razorback sucker can be linked to flow regulation or alterations (e.g. the installation of dams), habitat loss, and competition and predation by non-native fishes. Razorback suckers mainly eat algae, zooplankton, and other aquatic invertebrates. They spawn between February and June. Adult razorback suckers prefer slow backwater habitats. The largest current concentration of razorback suckers can be found in Lake Mohave (an impounded water-body), located along the Arizona - Nevada border (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the razorback sucker within the vicinity of the defined project area (see attached UDWR letter). This project would not impact any fish habitat. Razorback suckers are native to, and found exclusively within the Colorado River system; therefore, a no effect determination is warranted for the razorback sucker.

Shrubby reed-mustard

Shrubby reed-mustard is a federally listed endangered plant that is found only in the Uinta Basin in Duchesne and Uintah Counties, Utah. Shrubby reed-mustard is a perennial herb with yellow flowers that bloom from May to June. This species grows in fine textured soils mixed with fragmented shale, in mixed desert shrub and pinyon-juniper vegetative communities at elevations ranging from 5,098 to 6,700 feet (1,554 to 2,042 meters) above sea level. Threats to shrubby reed-mustard include habitat degradation resulting from grazing and resource (energy) development (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the shrubby reed-mustard within the vicinity of the defined project area (see attached UDWR letter). A large percentage of the project action area is situated within ongoing agricultural land uses (planted or grazed fields) or pre-disturbed settings (i.e. gravel roads or within existing lateral footprints), where the shrubby reed-mustard is not expected to occur. The proposed pipeline alignments are not anticipated to traverse through areas consisting of pinyon-juniper vegetative communities, where more suitable habitat for this species may occur. A no effect determination is warranted for the shrubby reed-mustard, because it is not anticipated to be present in the project action area.

Uinta Basin hookless cactus

The Uinta Basin hookless cactus is a federally listed threatened plant that is found exclusively in the Uinta Basin in Duchesne, Uintah and Carbon Counties, Utah. Uinta Basin hookless cactus is a perennial herb with pink flowers that bloom from April to late May. This species is found in salt desert shrub and pinyon-juniper vegetative communities along river benches, valley slopes, and rolling hills. Uintah Basin hookless cactus grows in cobbles and pebbles overlying fine textured soils, at elevations ranging from 4,462 to 6,562 feet (1,360 to 2,000 meters) above sea level. Threats to the species include habitat degradation resulting from oil and gas exploration and development, grazing, off-road vehicle use, and stone collecting (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the Uinta Basin hookless cactus within the vicinity of the defined project area (see attached UDWR letter). This species is not expected to be present in the project action area; therefore, a no effect determination is warranted for the Uinta Basin hookless cactus.

Ute Ladies-tresses

Ute ladies'-tresses is a member of the orchid family. It was first described in 1984 and was federally listed as threatened by the USFWS under the ESA in January, 1992 (USFWS, 1995). Populations have been found in Utah, Colorado, Wyoming, Montana, Nevada, Idaho, and Washington. The elevation ranges in which populations have been found vary from 750 to 7,000 feet, with most populations above 4,000 feet. It is found in wetlands and riparian areas, including spring habitats, mesic meadows, river meanders and floodplains. They require open habitats, and populations decline if trees and shrubs invade the habitat. They are not tolerant of permanent standing water, and do not compete well with aggressive species such as reed canary grass (*Phalaris arundinacea*). The survey time for the species, as identified by the USFWS (2011), is mid-August through mid-September.

Based on information obtained from the UDWR, there are no recent documented occurrences of the Ute ladies-tresses within the vicinity of the defined project area (see attached UDWR letter). A majority of the project action area is composed of a highly disturbed, agricultural land uses. Natural open riparian habitats conducive for this species are lacking in the project action area. Required habitat of the Ute ladies-tresses is not present within the project area; therefore, a no effect determination is warranted.

Yellow-billed cuckoo

The yellow-billed cuckoo is a federally listed candidate species. As the name suggests, it has a yellow lower mandible. It has rufous wings that contrast against the gray-brown wing coverts and upperparts. The underparts are white and they have large white spots on a long black undertail (Alsop 2001). It is a neotropical migrant, which winters in South America. Breeding often coincides with the appearance of massive numbers of cicadas, caterpillars, or other large insects (Ehrlich et al. 1992). Its incubation/nesting period is the shortest of any known bird because it is one of the last neotropical migrants to arrive in North America and chicks have very little rearing time before embarking on their transcontinental migration. Yellow-billed cuckoos arrive in Utah in extremely late May or early June and breed in late June through July. Cuckoos typically start their southerly migration by late August or early September. Yellow-billed cuckoos are considered a riparian obligate and are usually found in large tracts of cottonwood/willow habitats with dense sub-canopies (below 33 ft).

Riparian habitat required by the yellow-billed cuckoo is not present within the project action area. A no effect determination is warranted for the yellow-billed cuckoo and its habitat.

White River penstemon

White River penstemon is a federally listed candidate species. Distribution of this species is limited to Duchesne and Uintah counties, Utah, and Rio Blanco County, Colorado. This perennial herb, a member of the figwort family, is 5.9 to 19.7 inches (15 to 50 cm) tall. The lavender to pale blue flowers bloom from late May to June. The species is found in semi-barren areas within pinyon-juniper, desert shrub, and mixed desert shrub vegetative communities at elevations ranging from 5,000 to 6,680 feet (1,524 to 2,036 meters) above sea level. White River penstemon grows within fine textured soils usually mixed with fragmented shale. The primary threat to this species is trails associated with winter grazing (UDWR 2011).

Based on information obtained from the UDWR, there are no recent documented occurrences of the White River penstemon within the vicinity of the defined project area (see attached UDWR letter). A large percentage of the project action area is situated within ongoing agricultural land uses (planted or grazed fields) or pre-disturbed settings (i.e. gravel roads or within existing lateral footprints), where the White River penstemon is not expect to occur. A no effect determination is warranted for the White River penstemon, because it is not anticipated to be present in the project action area.

Conclusion

The findings in this letter suggest that there is no critical or sensitive habitat located within the project action area specific to the ESA listed species discussed herein. A large percentage of the proposed project footprint contains pre-developed or pre-disturbed areas associated with ongoing agricultural uses (e.g. planted/cultivated fields or livestock grazing). Pristine, natural and undisturbed sagebrush communities or habitat is lacking in the project action area. There should be no direct or indirect impacts to the seventeen species or their habitats discussed in this report as a result of the proposed irrigation piping project. It should be noted, that the final authority rests with the appropriate regulatory agencies.

Submitted by:

11-14-11

Vincent Barthels, Biologist
J-U-B ENGINEERS, Inc.

List of Attachments:

1. Project Summary Exhibit
2. ESA Species Listings for Duchesne and Uintah Counties, Utah (dated: June 13, 2011)
3. UDWR Response Letter (dated: September 19, 2011)

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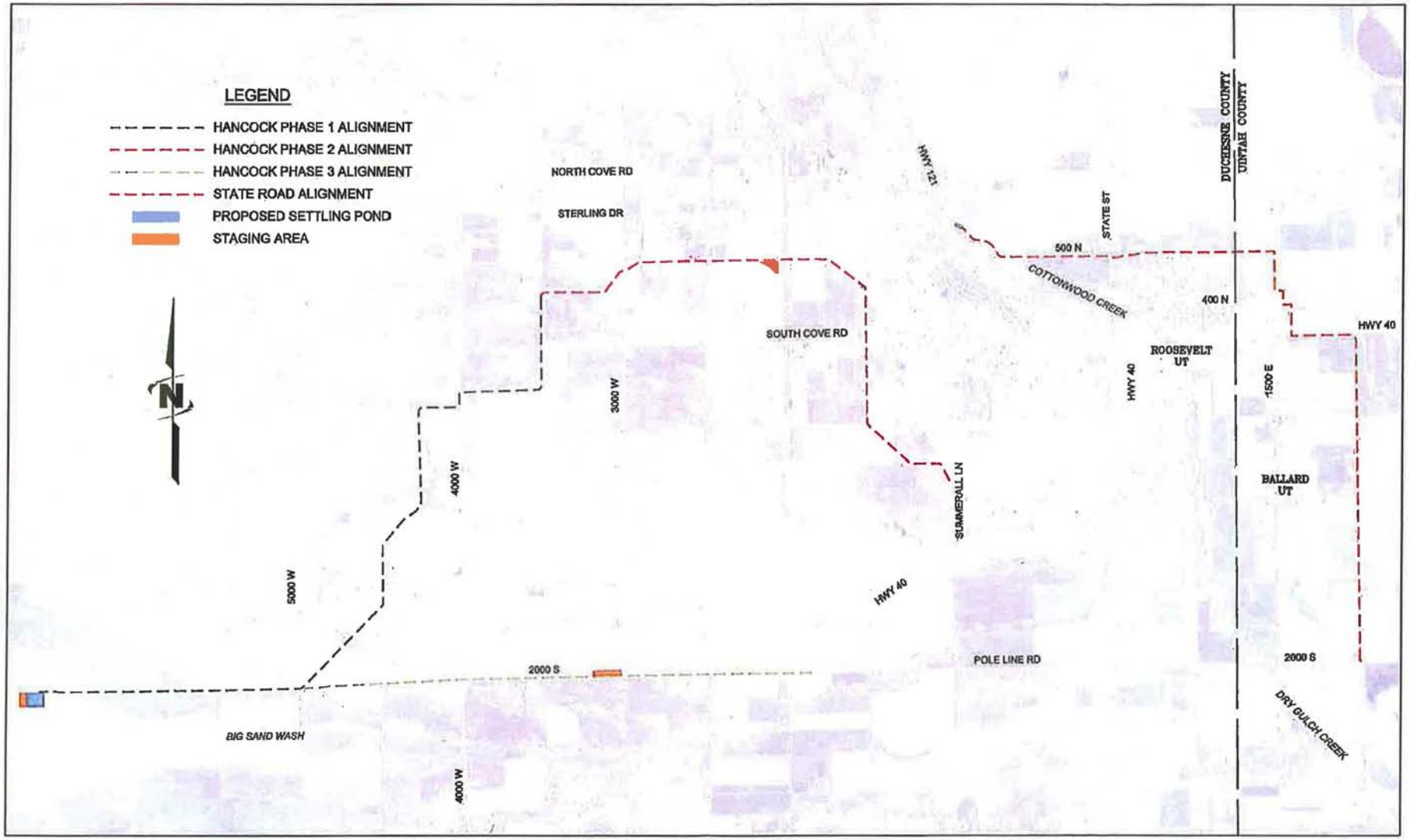

J-U-B Engineers Group

DRY GULCH IRRIGATION COMPANY
HANCOCK - STATE ROAD
PROJECT SUMMARY EXHIBIT

FEDERALLY LISTED AND PROPOSED ENDANGERED, THREATENED AND CANDIDATE SPECIES AND CRITICAL HABITAT IN UTAH - SPECIES LIST BY COUNTY

Monday, June 13, 2011

County	Common Name	Scientific Name	Federal Status
BEAVER			
	California condor (2)	*Gymnogyps californianus*	Endangered
	Frisco buckwheat	*Eriogonum soredium*	Candidate
	Frisco clover	*Trifolium friscanum*	Candidate
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Ostler's peppergrass	*Lepidium ostleri*	Candidate
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
BOX ELDER			
	Goose Creek milkvetch	*Astragalus anserinus*	Candidate
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	June sucker (3)	*Chasmistes liorus*	Endangered
	Lahontan cutthroat trout	*Oncorhynchus clarkii henshawi*	Threatened
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Northern Leatherside	*Lepidomeda copei*	Petitioned
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
CACHE			
	Canada lynx	*Lynx canadensis*	Threatened
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Maguire primrose	*Primula maguirei*	Threatened
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
CARBON			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered

County	Common Name	Scientific Name	Federal Status
CARBON			
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Graham's beardtongue	*Penstemon grahamii*	Proposed
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
DAGGETT			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (6)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6)	*Ptychocheilus lucius*	Endangered
	Gibbens' beardtongue	*Penstemon gibbensii*	Petitioned
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6)	*Gila cypha*	Endangered
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Razorback sucker (6)	*Xyrauchen texanus*	Endangered
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
DAVIS			
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
DUCHESNE			
	Barneby ridge-cress	*Lepidium barnebyanum*	Endangered
	Black-footed ferret (4,7)	*Mustella nigripes*	Endangered
	Bonytail (6)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6)	*Ptychocheilus lucius*	Endangered
	Graham's beardtongue	*Penstemon grahamii*	Proposed

County	Common Name	Scientific Name	Federal Status
DUCHESNE			
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6)	*Gila cypha*	Endangered
	Mexican spotted owl (8)	*Strix occidentalis lucida*	Threatened
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Pariette cactus	*Sclerocactus brevispinus*	Threatened
	Razorback sucker (6)	*Xyrauchen texanus*	Endangered
	Shrubby reed-mustard	*Schoenocrambe suffrutescens*	Endangered
	Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
EMERY			
	Barneby reed-mustard	*Schoenocrambe barnebyi*	Endangered
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered
	California condor (2)	*Gymnogyps californianus*	Endangered
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Jones cycladenia	*Cycladenia jonesii*	Threatened
	Last Chance townsendia	*Townsendia aprica*	Threatened
	Mexican spotted owl (5)	*Strix occidentalis lucida*	Threatened
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	San Rafael cactus	*Pediocactus despainii*	Endangered
	Southwest willow flycatcher	*Empidonax traillii extimus*	Endangered
	Utah prairie dog (15)	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Winkler cactus	*Pediocactus winkleri*	Threatened
	Wright fishhook cactus	*Sclerocactus wrightiae*	Endangered
GARFIELD			
	Autumn buttercup	*Ranunculus aestivalis*	Threatened
	Bonytail (5,6)	*Gila elegans*	Endangered

County	Common Name	Scientific Name	Federal Status
SEVIER			
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Heliotrope milkvetch	*Astragalus montii*	Threatened
	Last Chance townsendia	*Townsendia aprica*	Threatened
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Utah prairie dog	*Cynomys parvidens*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	Wright fishhook cactus	*Sclerocactus wrightiae*	Endangered
SUMMIT			
	Black-footed ferret (4)	*Mustella nigripes*	Endangered
	Bonytail (6,9)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6,9)	*Gila cypha*	Endangered
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Northern Leatherside	*Lepidomeda copei*	Petitioned
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Razorback sucker (6,9)	*Xyrauchen texanus*	Endangered
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
TOOELE			
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Least chub (14)	*Iotichthys phlegethontis*	Candidate
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
UINTAH			
	Black-footed ferret (7)	*Mustella nigripes*	Endangered
	Bonytail (5,6)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Clay reed-mustard	*Schoenocrambe argillacea*	Threatened
	Colorado pikeminnow (5,6)	*Ptychocheilus lucius*	Endangered

County	Common Name	Scientific Name	Federal Status
UINTAH			
	Graham's beardtongue	*Penstemon grahamii*	Proposed
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (5,6)	*Gila cypha*	Endangered
	Mexican spotted owl (8)	*Strix occidentalis lucida*	Threatened
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Pariette cactus	*Sclerocactus brevispinus*	Threatened
	Razorback sucker (5,6)	*Xyrauchen texanus*	Endangered
	Shrubby reed-mustard	*Schoenocrambe suffrutescens*	Endangered
	Uinta Basin hookless cactus	*Sclerocactus wetlandicus*	Threatened
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
	White River penstemon	*Penstemon scariosus albifluvis*	Candidate
UTAH			
	Bonytail (6,9)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Clay phacelia	*Phacelia argillacea*	Endangered
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Deseret milkvetch	*Astragalus desereticus*	Threatened
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6,9)	*Gila cypha*	Endangered
	June sucker (5)	*Chasmistes liorus*	Endangered
	Least chub (13)	*Iotichthys phlegethontis*	Candidate
	Northern Leopard Frog	*Rana pipiens*	Petitioned
	Razorback sucker (6,9)	*Xyrauchen texanus*	Endangered
	Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
	Western yellow-billed cuckoo	*Coccyzus americanus occidentalis*	Candidate
WASATCH			
	Bonytail (6,9)	*Gila elegans*	Endangered
	Canada lynx	*Lynx canadensis*	Threatened
	Colorado pikeminnow (6,9)	*Ptychocheilus lucius*	Endangered
	Greater sage-grouse	*Centrocercus urophasianus*	Candidate
	Humpback chub (6,9)	*Gila cypha*	Endangered

= Not included based on ESA listed "Petitioned" status.

1 Candidate species have no legal protection under the Endangered Species Act. However, these species are under active consideration by the Service for addition to the Federal List of Endangered and Threatened Species and may be proposed or listed during the development of the proposed project.

2 This species is designated a non-essential, experimental population east of I-15 to 191, and south of I-70. Animals occurring outside the designated areas are protected as Endangered.

3 Introduced, refugia population.

4 Historical range.

5 Critical habitat designated in this county. Critical habitat shapefiles are available on http://criticalhabitat.fws.gov

6 Water depletions from any portion of the occupied drainage basin are considered to adversely affect or adversely modify the critical habitat of the endangered fish species, and must be evaluated with regard to the criteria described in the pertinent fish recovery programs.

7 Non-essential, experimental population.

8 Suitable habitat occurs in southern Duchesne County, including Nine-Mile and Argyle canyon.

9 Eastern portions of these counties lie within the Upper Colorado River Basin. Any water depletion from the basin adversely affects these fish.

10 Critical habitat proposed in this county.

11 Nests in this county of Utah.

12 Range may be expanding northward into Nevada and Utah and into Grand Canyon in Mohave County, AZ.

13 The species is not present in this county. One or more hydrologic unit (8-digit HUC) in this county is occupied by the species in an adjacent county. Any water depletion from an occupied hydrologic unit may adversely affect this species.

14 The species occupies habitat in one or more hydrologic unit (8-digit HUC) within this county. Any water depletion fron an occupied hydrologic unit may adversely affect the species.

15 The species is not known to be present in this county, however a portion of this county is within the survey area as defined by the Utah Division of Wildlife Resources.

GARY R. HERBERT
Governor
GREGORY S. BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Division of Wildlife Resources
JAMES F. KARPOWITZ
Division Director

September 19, 2011

Marti Hoge
J-U-B Engineers, Inc.
2875 S. Decker Lake Drive, Suite 575
Salt Lake City, Utah 84119

Subject: Species of Concern Near the Dry Gulch Irrigation Company Salinity Reduction Project

Dear Marti Hoge:

I am writing in response to your letter dated September 14, 2011 regarding information on species of special concern proximal to the proposed Dry Gulch Irrigation Company Salinity Reduction Project located in Sections 7-8, 14-18, 20-23, and 26-30 of Township 2 South, Range 1 West, and Sections 12-14, 23-24 and 26-27 of Township 2 South, Range 2 West, USB&M, in Duchesne and Uintah Counties, Utah.

Within the project area noted above, the Utah Division of Wildlife Resources (UDWR) has recent records of occurrence for white-tailed prairie-dog, a species included on the *Utah Sensitive Species List.*

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's northeastern regional habitat manager, Miles Hanberg, at (435) 781-6707 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

Sarah Lindsey

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Miles Hanberg

1594 West North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

UTAH DNR WILDLIFE

Appendix C
UGS Letter

GARY R. HERBERT
Governor
GREG BELL
Lieutenant Governor

State of Utah
DEPARTMENT OF NATURAL RESOURCES
MICHAEL R. STYLER
Executive Director
Utah Geological Survey
RICHARD G. ALLIS
State Geologist/Division Director

January 11, 2012

Brian Joseph, Archaeologist
U. S. Bureau of Reclamation
Provo Area Office, PRO-772
302 East 1860 South
Provo, UT 84606-7317

RE: Paleontological File Search and Recommendations for the Hancock-State Road Salinity Reduction Project, Duchesne and Uintah Counties, Utah
U.C.A. 79-3-508 compliance; literature search for paleontological specimens or sites

Dear Brian:

I have conducted a paleontological file search for the Hancock-State Road Salinity Reduction Project in response to your request of January 11, 2012.

There are no paleontological localities recorded in our files within this project area. Quaternary and Recent alluvial deposits that are exposed over most of this project area have a low potential for yielding significant fossil localities (PFYC 1–2). However, there may also be exposures of the Eocene Duchesne River Formation that have the potential for yielding significant vertebrate fossil localities (PFYC 4-5). If these units will be disturbed as a result of ground disturbing activities, we recommend that this project be evaluated by a permitted paleontologist in order to determine and mitigate any potential impacts to paleontological resources. Otherwise, unless fossils are discovered as a result of construction activities, this project should have no impact on paleontological resources.

If you have any questions, please call me at (801) 537-3311.

Sincerely,

Martha Hayden
Paleontological Assistant

1594 West North Temple, Suite 3110, PO Box 146100, Salt Lake City, UT 84114-6100
telephone (801) 537-3300 • facsimile (801) 537-3400 • TTY (801) 538-7458 • *geology.utah.gov*

UTAH DNR GEOLOGICAL SURVEY

Appendix D
SHPO Concurrence

State of Utah

GARY R. HERBERT
Governor

GREG BELL
Lieutenant Governor

Department of Community and Culture

JULIE FISHER
Executive Director

State History

WILSON G. MARTIN
Acting Director

ORIGINAL

PRO OFFICIAL FILE COPY

RECEIVED

NOV 22 '11

Reply Date		
Date	Initials	Code
		120
		195
		107
		700
		770
		7120

Action:
Classification: ENV-3.00
Project: CU
Control No: 11087126
Folder I.D.: 1148660

November 17, 2011

Jeffrey D'Agostino
Chief, Environmental Group
Bureau of Reclamation
Provo Area Office
302 East 1860 South
Provo Utah 84606-7317

RE: A Cultural Resource Inventory of the Dry Gulch Irrigation Company Hancock-State Road Salinity Reduction Project in Duchesne and Uintah Counties, Utah (U-11-B-0389ps)

In reply please refer to Case No. 11-2389

Dear Mr. D'Agostino:

The Utah State Historic Preservation Office received your request for our comment on the above referenced undertaking on October 27, 2011.

USHPO concurs with the BOR determination of **Adverse Effect 36 CFR 800.5(a).** Our office understands that an MOA will be developed for the undertaking, and that the Advisory Council has declined to participate in the MOA **Appendix A, Criteria for Council Involvement in Reviewing Individual Section 106 Cases.**

This letter serves as our comment on the determinations you have made, within the consultation process specified in §36CFR800.4. If you have questions, please contact me at 801-533-3555 or Jim Dykmann at 801-533-3523.

Sincerely,

Lori Hunsaker
Deputy State Historic Preservation Officer
Archaeology

UTAH STATE HISTORY

UTAH STATE HISTORICAL SOCIETY
ANTIQUITIES
HISTORIC PRESERVATION
RESEARCH CENTER & COLLECTIONS

300 S. RIO GRANDE STREET, SALT LAKE CITY, UT 84101-1182 · TELEPHONE 801 533-3500 · FACSIMILE 801 533-3503 · HISTORY.UTAH.GOV

Appendix E
Public Comments

JAN 24 2012

PRO-770
ENV-4.00

To: Interested Persons, Organizations, and Agencies

Subject: Environmental Assessment (EA) for the Hancock-State Road Salinity Reduction Project in Uintah and Duchesne Counties, Utah

In Compliance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality, and the Department of Interior regulations implementing NEPA, the Bureau of Reclamation, Provo Area Office has completed an EA to determine the effects of using Colorado River Basin Salinity Control Program funds to replace portions of the existing unlined earthen Hancock Canal, Martin Lateral and State Road Canal laterals with a pipeline. We have enclosed a copy of this EA for your information and review.

The proposed action analyzed in this EA is Reclamation's authorization for the Dry Gulch Irrigation Company to use Federal funds to replace portions of the existing unlined earthen Hancock Canal, Martin Lateral, and State Road Canal laterals with a pipeline. This project is located in Uintah and Duchesne Counties, in and near the vicinity of Roosevelt, Utah.

The project would abandon and replace approximately 18 linear miles of existing open unlined earthen laterals with approximately 16.72 linear miles of new pipeline. The new pipeline would connect to approximately 12 linear miles of piped segments of the existing irrigation lines.

In accordance with the above referenced NEPA regulations, all comments on this EA received by Friday, February 3, 2012, will be considered in determining whether to execute a Finding of No Significant Impact and authorizing Dry Gulch Irrigation Company to implement the proposed action. Comments may be sent to Mr. Jeffrey D'Agostino of this office or by e-mail to jdagostino@usbr.gov. If you have any questions, please contact Mr. D'Agostino at 801-379-1161.

Sincerely,

CURTIS A. PLEDGER

Curtis A. Pledger
Area Manager

Enclosure

WBR:JD"Agostino:landra:1/18/12:x1161:770/Dry Gulch Federal Review Letter.doc
Identical letters sent to persons on next page

Mr. Tracy Killian
President, Dry Gulch Irrigation Company
263 East Lagoon
P.O. Box 265
Roosevelt, UT 84066

Mr. Kent L. Jones
Utah State Engineer
Utah Division of Water Rights
P.O. Box 146300
Salt Lake City, UT 84114

Ms. J'Nell Huxford
County Executive Director
Duchesne County Farm Service Agency
240 West Highway 40, No. 33
Roosevelt, UT 84066-0218

Mr. Richard Crosland
Region 3 Environmental Manager
Utah Department of Transportation
658 North 1500 West
Orem, UT 84057

Mr. Matthew Cazier
Director, Uintah County
Community Development
152 East 100 North
Vernal, UT 84078

Mr. Hollis Jenks
Bountiful Regulatory Office
U.S. Corps of Engineers
533 West 2600 South, Suite 150
Bountiful, UT 84010

Department of Environmental Quality
Water Quality Division
P.O. Box 144870
Salt Lake City, UT 84114-4870

Utah Department of Wildlife Resources
152 East 100 North
Vernal, UT 84078

Mr. Mike Stiewig
Field Manager, Vernal Field Office
Bureau of Land Management
170 South 500 East
Vernal, UT 84078

Mr. Larry Crist
Field Supervisor Ecological Services
U.S. Fish and Wildlife Service
2369 West Orton Circle, Suite 50
West Valley City, UT 84119

Mr. Mike Hyde
Duchesne County Planning Department
P.O. Box 317
Duchesne, UT 84021-0317

Mr. Bob Leake
State of Utah Regional Engineer
State and County Building
152 East 100 North
Vernal, UT 84078

ORIGINAL

DUCHESNE COUNTY COMMISSION

Kirk J. Wood, Chairman; Ronald Winterton, Member; Kent R. Peatross, Member

P.O. Box 270
Duchesne, Utah 84021-0270
Phone (435) 738-1100
Fax (435) 738-5522

January 31, 2012

Mr. Jeffrey D'Agostino
Bureau of Reclamation
302 E 1860 South
Provo, UT 84606-7317

RE: Dry Gulch Irrigation Company
Hancock-State Road Salinity Reduction Project

Dear Mr. D'Agostino:

Thank you for providing Duchesne County with a copy of the Environmental Assessment associated with this salinity reduction project. The project would install 16.4 miles of new irrigation water pipeline, connecting to 12 miles of existing pipeline.

We feel that the project would be beneficial in eliminating seepage from approximately 18 miles of open, unlined irrigation ditch and reducing salt loads in the Colorado River basin. The environmental effects of the project seem very minimal indeed. We support allowing Dry Gulch Irrigation Company to proceed with the proposed action. We request that construction activities be limited to 7:00 AM to 9:30 PM on weekdays, 8:00 AM to 9:30 PM on Saturdays and 9:00 AM to 9:30 PM on Sundays and holidays, in accordance with the Duchesne County Nuisance Ordinance.

Duchesne County appreciates the opportunity to comment.

Sincerely,

DUCHESNE COUNTY COMMISSION

Kirk J. Wood
Ronald Winterton

Mike Hyde, AICP
Community Development Director

pc: Dry Gulch Irrigation Company, PO Box 265, Roosevelt, UT 84066-0265