



Middle Reach Rosewood Creek SEZ Restoration Project

ADMINISTRATIVE DRAFT IMPLEMENTATION PLAN

Prepared for
Nevada Tahoe Conservation District

Prepared by
Valley & Mountain Consulting

and

ENTRIX, Inc.
Wood Rodgers

April 19, 2006

Accepted as final

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I. Introduction

The Middle Rosewood Creek SEZ Restoration Project (Project) Implementation Plan is a companion to the Concept (25%) Design prepared for the Nevada Tahoe Conservation District (NTCD) by the same consulting team. The Concept Design depicts proposed restoration actions within the 7,200 foot Project reach of Rosewood Creek between State Route (SR) 28 and SR 431 in Incline Village, NV. The Implementation Plan summarizes major considerations regarding spatial grouping of actions, construction access, staging, feasibility, permitting issues, easement requirements, potential phasing, and funding or data gaps. The focus of the Implementation Plan is to identify major critical path items, determine overall guidance for 90% design development, and identify key issues or constraints that may affect the project during final design and approvals.

IMPLEMENTATION AREAS

The Concept Plan for the Project includes all measures considered necessary to maximize overall performance. However, several discrete 'Implementation Areas' have also been identified that can function independently (**Table 1**). The implementation area boundaries (**Figure 1**) are primarily based on physical factors that control geomorphic and hydraulic conditions, along with key constructability considerations (e.g., access points, ability to control/bypass flows and provide temporary BMPs, degree of disturbance, landownership). The implementation areas provide options for Project implementation sequencing/scheduling to be adjusted according to funding opportunities and landowner participation. Each implementation area can be independently designed, permitted, and constructed. However, all measures recommended within each implementation area should be completed so they function together to obtain the desired hydrologic, geomorphic, and biologic results.

Table 1: Implementation Areas for the Middle Rosewood Creek Restoration

Implementation Area	Downstream Station	Upstream Station	Reach(es)*
A	0+00	19+40	1 to 6
B	20+00	22+50	6
C	26+00	32+75	7 to 10
D	32+75	36+40	10 and 11
E	42+25	43+25	13
F	43+25	49+75	13
G	51+00	58+50	14
H	58+50	64+25	15
I	64+75	69+00	16

* As identified in the Mainstream (2005) assessment.



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FIGURE 1: Implementation Areas





PERMITTING STRATEGY

For permitting purposes, a "project area" will be identified that encompasses the whole project corridor and each of the discrete "implementation areas". Some locations within the boundary of the project area will not be subject to specific actions. However, use of a project area that covers all recommended actions and all involved parcels will streamline the TRPA project review and approval.

Other entities that will be permitting the project include the US Army Corps of Engineers (USACE) (General Permit 016), Nevada Division of Environmental Protection Bureau of Water Pollution Control (Temporary Working in Waterways Permit) and Water Quality Planning (State 401 Water Quality Certification), and Washoe County (Grading/Dust Control). Additional coordination will verify how permits will be held by landowners and/or sponsoring agencies.

Project actions on USFS administered parcels will require compliance with the National Environmental Policy Act (NEPA). A Biological Assessment/Biological Evaluation (BA/BE) will be needed for each USFS parcel affected. The BA/BE must include an assessment of existing vegetation, noxious weeds, wildlife species, and their habitat, along with threatened and endangered species documentation. A cultural resources inventory and wetland delineation must also be completed and verified by the Nevada State Historic Preservation Office (SHPO) and the USACE, respectively. Studies previously prepared by others are available for reference, but do not necessarily address the entire subject project area.

In addition, any USFS administered parcel that will be encumbered with any physical improvement will require a Special Use Permit (SUP) from the USFS. Additional coordination with the USFS will be used to verify how an encumbrance would be handled and/or if the SUP could address more than one USFS parcel within the project corridor.

Proposed improvements (culvert crossings, SWT facilities) within the Nevada Department of Transportation's (NDOT) or Washoe County public right-of-way (ROW) will require Encroachment Permits, with varied lead times (typically six months or more).

The NTCD administers the Backyard Conservation Program which offers free BMP site evaluations to private property owners to design and implement BMP retrofits. As design of the proposed project moves forward, we will identify opportunities to coordinate private property BMPs with the designed restoration efforts to affect award of retrofit credit shared or individual wherever possible. Although NTCD will have a linear project area for TRPA permitting efficiency, discussions with TRPA and NTCD should be initiated to determine if restoration credit can be awarded to both private property owners as well as publicly owned parcels (USFS, NDOT if applicable).



II. Implementation Area Discussions

The following section describes each Implementation Area, identifies key constructability issues (staging, access, materials), and discusses re-vegetation approaches and permitting needs. Opportunities, constraints, and related issues that need to be explored during final design are also discussed.

The subset of recommended actions designed for improving stormwater conveyance, treatment, or outfall hydraulics located in public right-of-way and described within each geographic implementation area below may be able to be implemented separately, in coordination with other on-going/planned EIP projects. Coordination with NDOT, Washoe County and IVGID should determine the preferred implementation strategy prior to final design of the restoration project.

AREA A

Description

Implementation Area A extends from the upstream (US) side of SR 28 (0+00) to about 100 feet upstream (US) of Northwood Blvd. (19+40) and includes reaches 1 through 5 and a portion of reach 6 (Figure 1). The potential work areas and construction access/staging sites within Area A encompass several parcels (Table 2), but actions would be focused on two private parcels.

Table 2: Land Ownership for Implementation Area A

Downstream Station	Upstream Station	APN	Ownership
0+00	?		Public Right-of-Way (NDOT)
0+00	4+10	132-233-01	Private, Individual
4+10	17+30	132-060-00	Private, Association
17+30	17+85		Public Right-of-Way (Washoe County)
17+30*	17+85*	131-110-02	Private, Organization
17+85	19+40	131-200-00	Private, Association

* Possible staging area to east along Northwood Blvd.

Staging and Storage

Implementation Area A will require a minimum of two storage and staging areas, one at the downstream end, near Highway 28, and one at the upstream end, near Northwood Boulevard (Figure 2.1). Additionally, a third storage and staging area is recommended east of Rosewood Creek for construction access along the secondary channel. The storage and staging areas are located on previously disturbed land (existing asphalt concrete). These areas are on private property, but on the same parcels on which the



creek restoration is to occur. Therefore, the temporary easement acquisition could be obtained concurrently with the permanent drainage easement.

Construction Access

Construction Access for implementation area A will be required at four locations, two at Northwood Boulevard (one going upstream, and one going downstream), one on the north side of SR 28 and one within the Third Creek Condominiums east of the creek (Figure 2.1). Encroachment permits will be required from IVGID/Washoe County for the Northwood Boulevard access (and culvert replacement), from NDOT for the Highway 28 access, and from the Third Creek Condominium Association for the east side access.

Constructability

Construction in Implementation Area A will involve three different key scenarios: work in an active channel; work in a secondary channel; and, work in a new channel. The scenarios present different degrees of construction difficulty, and require varied levels of effort. A detailed construction schedule and possible phasing options need to be developed during the final design process.

Work in the active channel is proposed between stations 4+00 and 16+00, downstream of Northwood Boulevard. Streamflow will need to be temporarily bypassed during construction. To minimize risks, active channel work will be performed during low flow conditions (late summer, early fall) and be complete prior to the onset of winter. This leaves a narrow two to three month construction period. Coordination with regulatory agencies will determine the design storm event to be conveyed through the bypass facility, and will establish a contingency plan in the event that flows larger than the design storm occur during construction. The restored active channel will need to be stabilized to receive streamflow immediately upon completion of construction.

Work within the secondary channel is proposed along the east side of the SEZ, adjacent to the condominiums. Under existing conditions, the secondary channel does not typically receive overbank flows from the main channel, but conveys local snowmelt or stormwater runoff. The conceptual design does not envision work along the entire secondary channel, but may require work in several locations. The work will be completed during the "dry" season (i.e. summer) to avoid snowmelt runoff or storm events. Specific construction areas will be protected in the event of a summer thunderstorm. The proposed grading and re-vegetation measures would be stabilized to receive streamflow immediately upon completion of construction.

Work in a new (and/or remnant) channel alignment is proposed upstream of Highway 28 (station 0+00 to 4+00), and immediately upstream and downstream of Northwood Boulevard, including the relocated culvert (station 16+00 to 18+50). Under existing conditions these areas do not typically receive overbank streamflow, but experience local snowmelt or seasonal storm runoff. The work will be completed during the "dry" season (i.e. summer) to minimize runoff. Specific construction areas will be protected in the event of a summer thunderstorm. The areas would not have streamflow introduced



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Figure 2.1 Implementation Area A





until such time as the vegetation has become “established” (typically one to two years of plant establishment). The work should be conducted prior to redirection of flows from the portions of the existing channel that the ‘new’ alignment will replace. After flows can be introduced to the new channel, backfilling and revegetation of the abandoned portions of the existing channel would occur, along with possible stormwater treatment (SWT) features. Therefore, work in these sections will require a construction period that spans several years, with a couple of options for contracting:

- One option would use a single construction contract and contractor. This would require that the contract extend for at least two years, perhaps three or four. However, a single set of construction documents and a single public bid process would be required. A phased approach would be incorporated to sequence construction. Tentatively, the first season could include constructing a barrier to isolate the new and active channel, constructing the new channel sections/replacing the Northwood culvert, making enhancements to the secondary channel. Over the next one to two years revegetation of new channel sections would occur and be maintained until the vegetation is established enough to convey the creek flows. Restoration within the existing channel alignment could then occur, followed by removal of barriers to allow flows into the new channels and finally, backfilling, grading, and revegetation of the abandoned sections of the existing channel and completion of all other necessary items.
- A second option would use two separate contracts, one for initial construction, revegetation and interim maintenance and a second for the barrier removal and work in the existing channel. This scenario would require two separate sets of construction documents and two separate public bids.

Each option has good and bad points that must be weighted prior to developing the final construction documents for Implementation Area A. Under the first option, NTCD would only have one contract to negotiate and one contractor to oversee. However, the length of the contract may increase costs, due to contractor uncertainty with material, labor, and fuel costs. Under the second option, NTCD may have improved construction cost information available for bidders, with more appropriate/accurate bids. However, NTCD would experience additional design phase costs and added construction phase administration efforts for the two bids.

Re-vegetation Objectives

Re-vegetation objectives for Area A need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in along the main and secondary channels, and reconnected floodplains.



- Coordinate SEZ habitat enhancement with aesthetic and fire management goals. Eliminate private party removal of desired vegetation.
- Incorporate noxious weed abatement in implementation, with continued weed monitoring and management.

Opportunities

Potential cost sharing with NDOT for work within NDOT ROW.

Potential cost sharing opportunities with Washoe County for work in ROW.

Possible shared credit for landowners under BMP retrofit/SEZ restoration.

Need for phased work in new versus existing channel alignments may provide options to salvage and stockpile woody shrub riparian species for future use on Project. Areas within the mesic understory community identified during design development as possible plug collection sites could be harvested in initial phases of work.

AREA B

Description

Implementation Area B is a portion of reach 6 US of Northwood Blvd. between stream stations 20+00 to 22+50 (**Figure 1**). All potential work areas and construction access/staging sites for Area B are within one parcel (**Table 3**).

Table 3: Land Ownership for Implementation Area B

Downstream Station	Upstream Station	APN	Ownership
20+00	22+50	131-200-00	Private, Association

Staging and Storage

Implementation Area B will require the use of one storage and staging area located on the north side of Northwood Boulevard (**Figure 2.2**). This storage area is also identified as a storage and staging area for implementation area A. Additionally, there are potential storage and staging areas located both to the east (large parking lot approximately 200 feet south of the creek crossing of Northwood Boulevard) and to the north (tennis courts). The potential areas would require additional easements, and therefore have not been identified as the primary area. The storage and staging areas are located on previously disturbed land (existing asphalt concrete). These areas are on private property, but on the same parcels on which the creek restoration is to occur. Therefore the temporary easement acquisition could be obtained concurrently with the permanent drainage easement.



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Figure 2.2 Implementation Areas B, C





Construction Access

Construction Access for implementation area B will be required at one point, on the north side of Northwood Boulevard (**Figure 2.1**). Encroachment permits will be required from IVGID/Washoe County for the Northwood Boulevard access. No other encroachment permits would be required, but a temporary access easement from the private landowner might be required if the alternate storage and staging locations are used.

Constructability

Construction in Implementation Area B will involve two different key scenarios: work in an active channel and work in a secondary channel.

Work in the active channel is proposed between stations 20+00 and 22+50, upstream of Northwood Boulevard. Streamflow will need to be temporarily bypassed during construction. To minimize risks, active channel work will be performed during low flow conditions (late summer, early fall) and be complete prior to the onset of winter. This leaves a narrow two to three month construction time period. Coordination with regulatory agencies will determine the design storm event to be conveyed through the bypass facility, and will establish a contingency plan in the event that flows larger than the design storm occur during construction. The restored active channel will need to be stabilized to receive streamflow immediately upon completion of construction.

Work within the secondary channel may occur in the east side of the SEZ. Under existing conditions, the secondary channel does not typically receive overbank flows from the main channel, but may convey local snowmelt or stormwater runoff. The conceptual design does not envision work along the entire secondary channel, but may require work in several locations. The work will be completed during the “dry” season (i.e. summer) to avoid snowmelt runoff or storm events. Specific construction areas will be protected in the event of a summer thunderstorm. The proposed grading and re-vegetation measures would be stabilized to receive streamflow immediately upon completion of construction (following a two to three month construction period).

Re-vegetation Objectives

Re-vegetation objectives for Area B need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in and along the main and secondary channels.
- Coordinate SEZ habitat enhancement with aesthetic and fire management goals. Address existing high density vegetation cover.
- Incorporate noxious weed abatement in implementation, with continued weed monitoring and management.



Opportunities

Possible cost sharing and shared credit for landowner under BMP retrofit/SEZ restoration.

AREA C

Description

Implementation Area C extends from station 26+00 upstream of Northwood Blvd. to the upstream side of Harold Ave. at station 32+75, and includes reaches 7 through 10 (Figure 1). All potential work areas and construction access/staging site for Area C are in one public (federal) parcel and the public right-of-way (Table 4).

Table 4: Land Ownership for Implementation Area C

Downstream Station	Upstream Station	APN	Ownership
23+05	31+15	131-110-04	Public, U.S.
31+15	32+75		Public right-of-way (Washoe County)

Staging and Storage

Implementation Area C will require the use of one storage and staging area along Harold Drive (Figure 2.2). Additionally, there are potential storage and staging areas located on USFS land west of the creek. Staging on USFS land may require more effort to use and permit and since work will occur in Harold Drive, the USFS area is not depicted as the primary storage and staging site. However, channel restoration is proposed for the USFS parcel, so temporary easements may possibly be coordinated with special use permits. The Harold Drive staging area is located on previously disturbed land (existing asphalt concrete) and is within public right-of-way. The use of this area will require an encroachment permit from IVGID/Washoe County and substantial traffic control. The area would occupy a portion of the right-of-way, and allow two-way traffic to pass (except during the culvert replacement).

Construction Access

Construction Access to the creek for implementation area C will be required at one location, along the south side of Harold Drive (Figure 2.2). The access point will require an IVGID/Washoe County encroachment permit. If access through the west side of the USFS parcel off Village Boulevard is required, temporary encroachment permit could be coordinated with USFS special use permit.

Constructability

Construction in Implementation Area C will involve three different key scenarios: work in an active channel; work in a secondary channel; and, work in a new channel. The scenarios present different degrees of construction difficulty, and require varied levels of effort. A detailed construction schedule and possible phasing options needs to be developed during the final design process.



Work in the active channel is proposed downstream of station 32+00. Streamflow will need to be temporarily bypassed during construction. To minimize risks, active channel work will be performed during low flow conditions (late summer, early fall) and be complete prior to the onset of winter. This leaves a narrow two to three month construction time period. Coordination with regulatory agencies will determine the design storm event to be conveyed through the bypass facility, and will establish a contingency plan in the event that flows larger than the design storm occur during construction. The restored active channel will need to be stabilized to receive streamflow immediately upon completion of construction.

Work in new (and/or remnant) channel alignments, along with the fill removal and stormwater quality treatment modifications are proposed immediately downstream of Harold Drive, between station 31+00 and 32+00. These areas and the culvert replacement would be constructed without the presence of streamflow, and with minimal "run-on" flows. Under existing conditions these areas do not receive overbank streamflow, but experience local snowmelt or seasonal storm run-on. The work will be completed during the "dry" season (i.e. summer) to minimize run-on. Specific construction areas will be protected in the event of a summer thunderstorm and during plant establishment period. The areas would not have streamflow introduced until such time as the vegetation has become "established" (typically one to two years of plant establishment). The work should be conducted prior to redirection of flows from the portions of the existing channel that the 'new' alignment will replace. After flows can be introduced to the 'new channel', backfilling and revegetation of the abandoned portions of the existing channel would occur, along with reconfiguration of the stormwater treatment (SWT) features and all other items. Therefore, work in these sections will require a construction period that spans several years, and contracting options like those identified for Area A, plus any variations deemed appropriate if USFS leads implementation on their parcel.

Re-vegetation Objectives

Re-vegetation objectives for Area C need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in along the main and secondary channels, and reconnected floodplains.
- Enhance riparian and wetland habitat through reconstruction of an active floodplain.
- Coordinate SEZ habitat enhancement with aesthetic and fire management goals. Correct soil compaction from volunteer trails.
- Incorporate noxious weed abatement in implementation, with continued weed monitoring and management.



Opportunities

Relative low density of riparian vegetation and presence of non-riparian vegetation along bermed stream margins may reduce need for vegetation disturbance/removal.

Potential cost sharing and EIP project coordination with Washoe County on culvert replacement and SWT.

Coordination with USFS may present opportunities for funding and streamlined permitting/approval, but work on USFS parcel will require National Environmental Policy Act (NEPA) compliance.

AREA D

Description

Implementation Area D extends from the US side of Harold Ave. (32+75) to the DS side of Village Blvd. (36+40) and includes reaches 10 and 11 (**Figure 1**). All potential work areas and construction access/staging sites in Area D are in one private parcel and the public right-of-way (**Table 5**).

Table 5: Land Ownership for Implementation Area D

Downstream Station	Upstream Station	APN	Ownership
32+75	36+40	131-070-50	Private, Association
32+75	36+40		Public right-of-way (Washoe County)

Staging and Storage

Implementation Area D will require one storage and staging area located along either Harold Drive or Fairway Pines (**Figures 2.2 and 2.3**). Both areas are located on previously disturbed land (existing asphalt concrete) and on public right-of-ways. The use of either area will require an encroachment permit from IVGID/Washoe County and will require traffic control. The area of Harold Drive is intended to occupy a portion of the right-of-way as to allow for two way traffic to pass at all times, but may require higher levels of traffic control. Only one storage area is necessary in this implementation area.

Construction Access

Two access points are recommended for construction in implementation area D, one each at the upstream and downstream ends (**Figure 2.3**). The access points will require IVGID/Washoe County Encroachment permits for the Harold Drive and Village Boulevard access points and no other access permission will be required.



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Figure 2.3 Implementation Areas D, E, F





Constructability

Construction in Implementation Area D will involve work adjacent to the active channel on former floodplain and fill material. A detailed construction schedule needs to be developed during the final design process.

Work required adjacent to the active channel will be similar to construction in new channel alignments, and will involve fill removal. Under existing conditions, the area does not typically receive overbank streamflow, but experiences local snowmelt and runoff.

The construction will occur without the presence of streamflow, and with minimal "run-on". However, the close proximity of the active channel will require a high level of protection to prevent water quality degradation during construction and prior to revegetation success. The construction will be during low flow, low water conditions (summer and early fall) to minimize risk and will not have streamflow introduced until the plantings have been established and are able to convey the overbank flows without failure (typically one to two years). When interim protective barriers along the streambank are removed during a subsequent low flow season, streambank revegetation/stabilization would be implemented as needed to receive streamflow immediately upon completion of construction. Therefore, work in Area D may require a construction period that spans several years, and need contracting options like those identified for Area A.

Re-vegetation Objectives

Re-vegetation objectives for Area D need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Enhance riparian and wetland habitat through reconnection of the flood plain with the stream. Protect and potentially enhance existing Special Status Species (Washoe tall rockcress).
- Re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in along the main channel and reconnected floodplain.
- Coordinate SEZ habitat enhancement with noxious weed, aesthetic and fire management goals. Eliminate known noxious weeds and screen any fill proposed for reuse.

Opportunities

On-site seed source and need for phased work may allow seed collection from existing Washoe tall rockcress to be used for propagation and transplanting that enhances and enlarges the existing community.

Possible cost sharing and shared credit for landowner under BMP retrofit/SEZ restoration.



AREA E

Description

Implementation Area E is on the west side of Village Blvd. across from Driver Way and extends US from station 42+25 to 43+25 includes the lower portion of reach 13 (Figure 1). Potential work areas and construction access/staging sites for Area E encompass 1 to 3 private parcels, and public-right-of way (Table 6).

Table 6: Land Ownership for Implementation Area E

Downstream Station	Upstream Station	APN	Ownership
42+25	43+05	124-083-30	Private
43+05	43+25	124-083-26	Private
43+05*	43+15*	124-083-12	Private
42+25	43+05		Public right-of-way (Washoe County)

* Possible, inclusion in area west of channel (parcel boundaries to be field verified for final design).

Staging and Storage

Implementation Area E will require the use of one storage and staging area located on Ace Court (Figure 2.3). The area is located on previously disturbed land (existing asphalt concrete) and on public right-of-way. The use of this area will require an encroachment permit from IVGID/Washoe County and traffic control. The area would only occupy a portion of the right-of-way (cul-de-sac) and allow traffic to pass at all times. Since the area is located in a cul-de-sac, minimal traffic control measures would be anticipated.

Construction Access

Construction access for implementation area E will be required at one location, the downstream end of the reach located at Village Boulevard (Figure 2.3). The access point will require IVGID/Washoe County encroachment permits, but no other access permission will be required.

Constructability

Construction in Implementation Area E will involve work adjacent to the active channel, and replacing the existing channel with a new alignment. A detailed construction schedule needs to be developed during the final design process.

Work required adjacent to the active channel will be similar to construction of new channel alignments, and will involve fill removal. Under existing conditions, the area does not typically receive overbank streamflow, but has local snowmelt and runoff. The fill removal and construction of the new channel segment will occur without the presence of streamflow, and with minimal "run-on". However, the close proximity of the active channel will require a high level of protection to prevent water quality degradation



during construction and prior to revegetation success. The new channel and floodplain construction will be during low flow, low water conditions (summer and early fall) to minimize risk and will not have streamflow introduced until the plantings have been established and are able to convey the overbank flows without failure (typically one to two years). When interim protective barriers along the streambank are removed during a subsequent low flow season to redirect flow into the new channel, the existing channel would be backfilled to the floodplain elevation, revegetated, and stabilized to receive overbank flows immediately upon completion of construction. Therefore, work in Area E may require a construction period that spans several years, and contracting options for like those identified for Area A.

Re-vegetation Objectives

Re-vegetation objectives for Area E need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Enhance and expand riparian and wetland habitat through removal of fill and reconnection of the floodplain with the stream.
- Re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in along the new main channel and reconnected floodplain.
- Coordinate SEZ habitat enhancement with noxious weed, aesthetic and fire management goals.

Opportunities

Possible shared credit for landowners under BMP retrofit/SEZ restoration.

Need for phased work in new versus existing channel alignments may provide options to salvage and stockpile woody shrub riparian species for future use on Project.

AREA F

Description

Implementation Area F is on the west side of Village Boulevard, extending upstream of Driver Way and to the downstream side of College Avenue (stations 43+25 to 49+75), and including much of reach 13 (**Figure 1**). Most potential work areas and construction access/staging sites may be sited on private land under single ownership (124-083-26), but it is possible that some work areas, drainage easements, and temporary access easements may include other private parcels and/or public parcels and public right-of-way (**Table 7**).



Table 7: Land Ownership for Implementation Area F

Downstream Station	Upstream Station	APN	Ownership
43+25	49+75	124-083-26	Private
43+15	45+40	124-083-13	Private
45+40	46+90	124-083-14	Public, U.S.
46+90	47+40	124-083-15	Private
?	50+00		Public Right-of-Way (Washoe County)

Staging and Storage

Implementation Area F will require one or more storage and staging area (**Figure 2.3**), which can be located on private property under single ownership (124-083-26) and coordinated with ongoing and planned residential re-development projects. The staging and storage is to be located on previously disturbed land, or land proposed to be disturbed by the residential construction project. The parcel(s)¹ on which the storage and staging area would be located are those on which the creek restoration is to occur. Therefore, the temporary easement acquisition could be obtained concurrently with the permanent drainage easement.

Construction Access

Construction access to the creek within implementation area F will be required at multiple locations (**Figure 2.3**). The access points will not require IVGID/Washoe County encroachment permits. A temporary construction easement will be required from the private landowner, but should be readily coordinated with the permanent easements on the same parcel(s).

Constructability

Construction in Implementation Area F will primarily involve work in an active channel, and some work in all access and staging areas. A detailed construction schedule and possible phasing options need to be developed during the final design process. A key feature will be timely coordination with the contractor(s) for the residential construction and landscaping to minimize conflicts and potentially realize benefits to minimize the area, duration, and intensity of disturbance. In addition, coordination of project schedules may allow cobble and large log resources generated on-site by the residential project to be reused for the channel restoration.

Streamflow will need to be temporarily bypassed during construction in the active channel. To minimize risks, in-channel work will be performed during low flow conditions (late summer, early fall) and be complete prior to the onset of winter. This leaves a narrow two to three month construction time period. Coordination with regulatory agencies will determine the design storm event to be conveyed through the bypass

¹ Presently a single parcel, with a pending lot split under consideration by TRPA.



facility, and will establish a contingency plan in the event that flows larger than the design storm occur during construction. The restored active channel will need to be stabilized to receive streamflow immediately upon completion of construction.

Removal and revegetation of access roads and staging areas would occur immediately upon completion of in-channel work, and be stabilized to protect them from run-on or overbank flows during the initial year or two prior to successful plant establishment.

Work in implementation area F could be completed within one construction season, or be phased into two portions (upstream and downstream) to match the disturbance and materials availability associated with the residential development construction. Additional coordination between the landowner and NTCD should occur to determine the optimal contracting arrangement (public vs. private bid; one year or two, etc.) depending on funding sources. If grant funding requirements allow, possible cost savings to the property owners could be realized if all work was to be done with private funds, thus not requiring a public bid, nor paying of prevailing wage rates.

Re-vegetation Objectives

Re-vegetation objectives for Area F need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Enhance and re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in along the main channel.
- Coordinate SEZ habitat enhancement with aesthetic and fire management goals.
- Incorporate noxious weed abatement in implementation, with continued weed monitoring and management.

Opportunities

Private landowner's survey data may be available to assist with final determination parcel boundaries relative to the footprint of work, access, and easement locations.

Cobble and log resources generated by on-site development may be reused by the stream project; large down wood within SEZ may provide materials for the Project and meet other vegetation management goals.

Possible shared credit for landowners under BMP retrofit/SEZ restoration.

The in-channel grade control features are few and discontinuous, decreasing the area and disturbance from temporary easements. Additional coordination with the USFS will be needed on permanent easements, special use permits, or level of NEPA compliance.



AREA G

Description

Implementation Area G extends from the upstream side of College Avenue from station 51+00 to 58+50, coinciding with the boundary of the Incline Creek Estates development project, and all of reach 14 (**Figure 1**). Given the status of the phase 1 development east of the channel, all potential work areas and construction access/staging sites in Area G are focused on the private parcel west of the channel (Phase II of the development project—which has not yet been implemented) and the public right-of-way (**Table 8**).

Table 8: Land Ownership for Implementation Area G

Downstream Station	Upstream Station	APN	Ownership
51+00	?		Public Right-of-Way (Washoe County)
51+00	58+50	129-280-20	Private
51+00	56+50	129-280-21	Private

Staging and Storage

Implementation Area G will require the use of one storage and staging area located on private Property (**Figure 2.4**). The area is to be located on previously disturbed land, and/or land that will be disturbed during planned development. Further coordination will be required with the property owners, and future contractor. Ideally, the restoration features can be integrated in the final development project to avoid duplication of disturbance or conflicts during construction.

Construction Access

Construction access for implementation area G will be required at the downstream end of the reach (**Figure 2.4**). Encroachment permits will be required from IVGID/Washoe County for access from College Boulevard, but no additional permits may be required if access is provided within the private development project boundaries.

Constructability

- Construction in Implementation Area G will involve two different scenarios: work in the active channel and work in uplands. Although only minor improvements to the channel are recommended, the work would occur in the active channel. Work would be performed during low flow season and be completed within one construction season. Only temporary, site specific diversion of minimum streamflow may be required. Additional coordination will be required to determine design flows for any bypassing and any contingency plan requirements. The materials and approach must produce a stable channel that can receive streamflow immediately upon completion of construction. Work in the uplands on stormwater treatment features will utilize a low-impact approach and include temporary and permanent stabilization and revegetation



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Figure 2.4 Implementation Areas G, H,I





to minimize potential erosion and sedimentation that could reach the active channel downslope.

Re-vegetation Objectives

Re-vegetation objectives for Area G need to be established based on the approved concept for the area to guide the 90% design. The focus will be on objectives that compliment the approved plans for the Phase I development and could be incorporated in/be consistent with the proposed Phase II development Potential objectives include:

- Re-establish native riparian species for channel stabilization and erosion control in the sites along main channel that are disturbed.
- Re-establish and enhance native upland species and habitat in areas surrounding stormwater treatment facilities. Coordinate SEZ habitat enhancement with aesthetic and fire management goals. Eliminate private party removal of desired vegetation.
- Incorporate noxious weed abatement in implementation, with continued weed monitoring and management.

Opportunities

Existing disturbed uplands/filled areas are the focus of grading, so large tree removal should not be an issue in this implementation area.

Possible shared credit with landowner for BMP retrofit/SEZ restoration.

AREA H

Description

Implementation Area H extends from station 58+50 to the downstream side of Titlist Drive (64+25), including all of reach 15 (Figure 1). The potential work areas and construction access/staging sites for Area H are focused on one private parcel (association) and on public parcel (Table 9).

Table 9: Land Ownership for Implementation Area H

Downstream Station	Upstream Station	APN	Ownership
58+50	63+05	129-60-00	Private, Association
63+05	64+25	129-022-09	Public, NV
63+05*	64+25*	129-022-10	Private

* Possibly within area, to east of channel

The following discussion assumes work in Implementation Area H requires a public bid and will be performed by one contractor under the direction of the NTCD or its



consultant. It may be possible that work within this reach could be performed by individual landowners, which would require different coordination and implementation steps.

Staging and Storage

Implementation Area H will require the use of one storage and staging area located on public right-of-way on Crosby Court (**Figure 2.4**). The area is previously disturbed land, existing asphalt concrete. This area will require an encroachment permit from IVGID/Washoe County, and minimal traffic control, as the area is located in a cul-de-sac.

Construction Access

Construction access to the creek for implementation area H will be required at the upstream end of the reach (**Figure 2.4**). If the southerly, downstream, access point is also used, it will not require IVGID/Washoe County Encroachment permits; however a temporary construction easement will be required. The temporary construction easement will be from the same property as the proposed downstream staging and storage area, so coordination with this property owner (Falcon Capital, Incline Creek Estates, 2) is essential.

Constructability

Construction in Implementation Area H will require a detailed construction schedule be developed during the final design and coordination with all the property owners within the reach. The area is proposed to have minor improvements, not requiring large movement of earth, or large construction equipment. The restoration is proposed to be performed by "low impact" construction.

The work required will be adjacent to and in some areas, within the active channel. However, only temporary, local diversion or bypass of low streamflow would be anticipated. Work will be performed during the low flow season to minimize risk, and all work will need to be stabilized immediately upon completion of construction.

Re-vegetation Objectives

Re-vegetation objectives for Area H need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Enhance and re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in along the main channel and active floodplain.
- Coordinate SEZ habitat enhancement with aesthetic and fire management goals.
- Incorporate noxious weed abatement in implementation, with continued weed monitoring and management.



Opportunities

Coordination with and education of private property owners will complement actions to promote a healthy riparian community and enhance habitat in the wetted/reconnected floodplain while maintaining flood flow conveyance.

Possible shared credit for landowners under BMP retrofit/SEZ restoration.

AREA I

Description

Implementation Area I is a 425 foot section upstream of Titlist Drive, from station 64+25 to 69+00 (**Figure 1**). The potential work areas and construction access/staging sites include portions of several private and public parcels (**Table 10**).

Table 10: Land Ownership for Implementation Area I

Downstream Station	Upstream Station	APN	Ownership
64+80	65+40	129-021-03	Public, U.S.
65+40	66+10	129-150-00	Private, Association?
66+10	68+00	129-160-00	Public, NV
66+50	67+05	129-180-00	Public, NV
67+50	68+00	129-190-00	Public, NV
68+75*	70+00*	129-200-00	Private, Association
68+75	69+00	129-210-00	Public, NV
67+00**	69+00		Public/Private? right-of-way Crosby Ct

* Possible inclusion in work area, west of channel.

** Possible off-channel staging area to east.

Staging and Storage

Implementation Area I will require the use of two storage and staging areas located on public right-of-way on Crosby Court (**Figure 2.4**). The areas are on previously disturbed land, existing asphalt concrete. Both areas are located at the downstream end of the implementation area. These areas will require an encroachment permit from IVGID/Washoe County, and minimal traffic control, as the area is located in a cul-de-sac.

Construction Access

Construction access to the creek for implementation area I will be required at the downstream end of the reach (**Figure 2.4**). The access point will be from Titlist Drive and require an encroachment permit from IVGID/Washoe County.



Constructability

Construction in Implementation Area I will require a detailed construction schedule be developed during the final design and coordination with all the property owners within the reach. Additional or alternate easements within this area could create different access points that would be beneficial during construction, however this is not required.

The work required will be within and adjacent to the active channel. Work adjacent to the channel will involve fill removal and net excavation, along with revegetation. Under existing conditions, the bermed channel margins and isolated existing floodplain northwest of the channel do not typically receive overbank streamflow, but experience local snowmelt and runoff. The possibility of conducting this floodplain construction and revegetation work prior to the in-channel work and without bypassing streamflow should be explored during final design. However, all proposed work could be performed concurrently, but will require streamflow be bypassed and use of revegetation and stabilization methods to allow both the channel and floodplain to receive flow immediately upon completion of construction. If the work is done in a single construction season, the materials and methods may differ, but only one contract and contractor would be needed.

Re-vegetation Objectives

Re-vegetation objectives for Area I need to be established based on the approved concept for the area to guide the 90% design. Potential objectives include:

- Enhance riparian and wetland habitat through reconstruction and reconnection of the flood plain with the stream.
- Re-establish native riparian species for channel stabilization, erosion control, and habitat enhancement in along the main channel and floodplain.
- Coordinate SEZ habitat enhancement with noxious weed, aesthetic and fire management goals.

Opportunities

Coordination with and education of private property owners will complement actions to promote a healthy riparian community and enhance habitat in the wetted/reconnected floodplain while maintaining flood flow conveyance.

Possible shared credit for landowners under BMP retrofit/SEZ restoration.